



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# **PURCHASE ORDER** **PO038920**

**Supplier:** KLX001-VU  
KLX Inc.  
88289 Expedite Way  
Chicago, IL 33172 USA  
Phone: 305-925-2600  
Fax: 305-507-7191

**Attention:** Pilon, Lucie

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**PO No:** PO038920

**PO Date:** 1/31/18

**Due Date:** 2/5/18

**Purchase Order**

**Revision:**

**Revision Date:**

**Ship-To Contact:** Lavoie, Chantal  
clavoie@dartaero.com

**Via:** Fedex Economy

**Pymt Terms:** COD

**Freight Terms:** Collect

**Special Comments:**

**E-MAILED**  
JAN 31 2018

## **Items**

Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	MS21919WDG19		Clamp	Firmed	2/5/18	20 Ea	0 Ea	20 Ea	\$1.55/Ea	\$31.00
2	MS24523-27		Switch	Firmed	2/5/18	2 Ea	0 Ea	2 Ea	\$15.03/Ea	\$30.06
3	MS3373-A1		Strip	Firmed	2/5/18	6 Ea	0 Ea	6 Ea	\$3.08/Ea	\$18.48
4	AN310C5		Nut	Firmed	2/5/18	40 Ea	0 Ea	40 Ea	\$1.19/Ea	\$47.60
5	MS21920-22		Clamp receive ea	Firmed	2/5/18	50 Ea	0 Ea	50 Ea	\$11.766/Ea	\$558.83
6	MS21075L5		Nut Plate receive ea	Firmed	2/5/18	100 Ea	0 Ea	100 Ea	\$1.7269/Ea	\$172.69
7	MS24693-S277		Screw	Firmed	2/5/18	200 Ea	0 Ea	200 Ea	\$0.12/Ea	\$24.00
8	MS27039-4-08		Screw receive ea	Firmed	2/5/18	100 pcs	0 pcs	100 pcs	\$0.43/pcs	\$43.00
9	AN8-23A		Bolt receive ea	Firmed	2/5/18	10 Ea	0 Ea	10 Ea	\$1.28/Ea	\$12.80
<b>Grand Total:</b>										<b>\$938.46</b>

## **Order Notes**

**Order Notes**

## Procurement Quality Clauses

A005 RIGHT OF ENTRY

A016 PERSONNEL QUALIFICATION

A026 CERTIFICATION OF MATERIAL CONFORMANCE

A032 PUBLIC LAW 101-592 FASTENER QUALITY ACT

A033 STATEMENT OF CONFORMITY/TEST RECORDS FOR NAS, AN and MS FASTENERS

A040 NOTIFICATION OF QUALITY ESCAPE

A041 QUALITY MANAGEMENT SYSTEM

A042 DART NOTIFICATION BY SUPPLIER

A043 RETENTION OF QUALITY DOCUMENTS

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

*Plex 1/31/18 2:42 PM dart.lavoie.chantal*



Tel: +1.305.925.2600 • Fax: +1.305.507.7191 • www.KLXAerospace.com  
Remit to Address: 88289 Expedite Way, Chicago, IL 60695-0001  
Wire Instructions: KLX Inc. • JPMorgan Chase Bank New York  
ABA: 021000021 • Account: 304639273 • SWIFT: CHASUS33 • CHIP UID: 0002

INVOICE NUMBER

JHFZXS

PAGE 3 OF 4

SOLD TO:  
002409

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7



SHIP TO:

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

ORDER NO. PO038920		DATE 01/31/18	SHIP VIA FEDX INTL P1 COLL		TERMS NET 30		SHIPPING TERMS FOB-MIAMI	
ITEM NO.	QUANTITY ORDERED	PART NUMBER AND DESCRIPTION		PRICE	UNIT	BACK ORDER	SHIPPED	AMOUNT
		authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by U.S. law and regulations.  Ultimate Destination DART AEROSPACE LTD 1270 ABERDEEN ST HAWKESBURY ON K6A 1K7 CANADA						
***CONTINUED***								
MATERIAL TO BE RETURNED MUST HAVE PRIOR AUTHORIZATION BY KLX INC.								

ALL ITEMS ARE SUBJECT TO A 100% RESTOCKING CHARGE.

SHIPPED FROM: 10000 N W 15TH TERRACE, MIAMI, FL 33172

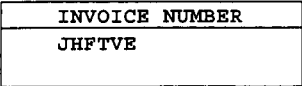
**MATERIAL CERTIFICATION:** KLX INC. ("KLX AEROSPACE SOLUTIONS") WARRANTS THAT THE ITEMS SUBJECT OF THIS INVOICE WILL BE FREE FROM DEFECTS OF MATERIAL AND WORKMANSHIP AND, AS SET FORTH ON THE MATERIAL CERTIFICATION FORM ACCOMPANYING THE ITEMS SUBJECT OF THIS INVOICE, ARE IN CONFORMITY WITH ALL CURRENT GOVERNMENTAL REQUIREMENTS AND THE SPECIFICATIONS OF THE RESPECTIVE MANUFACTURERS. KLX AEROSPACE SOLUTIONS DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE. THE LIABILITY OF KLX AEROSPACE SOLUTIONS IS EXPRESSLY LIMITED EXCLUSIVELY TO REPLACEMENT BECAUSE OF A DEFECT IN MATERIAL OR WORKMANSHIP SUCH REPLACEMENT SHALL OF ANY ITEM WHICH IS REJECTED CONSTITUTE SATISFACTION OF ALL LIABILITY KLX AEROSPACE SOLUTIONS MAY HAVE IN CONNECTION WITH SUCH ITEM, WHETHER LIABILITY IS BASED UPON CONTRACT RIGHTS, NEGLIGENCE, OR OTHERWISE, AND IN NO EVENT SHALL KLX AEROSPACE SOLUTIONS BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES. FURTHER, KLX AEROSPACE SOLUTIONS MUST BE NOTIFIED OF A REJECTION OF AN ITEM WITHIN 30 DAYS AFTER RECEIPT BY THE CUSTOMER.

PACKING SLIP

Vice President of Quality

BY RECEIVING DELIVERY OF THE ITEMS COVERED BY THIS PACKING SLIP, BUYER AGREES TO THE TERMS AND CONDITIONS OF SALE AT:  
<http://www.KLXAerospace.com/conditions-sale/>





PAGE 2 OF 2

**SHIP TO:**  
DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

ORDER NO.		DATE	SHIP VIA	TERMS		SHIPPING TERMS		
ITEM NO.	QUANTITY ORDERED	PART NUMBER AND DESCRIPTION		PRICE	UNIT	BACK ORDER	SHIPPED	AMOUNT
		Ultimate Destination DART AEROSPACE LTD 1270 ABERDEEN ST HAWKESBURY ON K6A 1K7 CANADA						
		*** SHIPPED 1 CTN *** # 1=CTN 2.00 Lb / 0.91 Kg 582264095489 FREIGHT ACCT# 15179324-0 TEL# 613-632-3336  DIMENSIONS: 6X6X4						
awil	B88Y05	SHIPPED ON 01/31/18						
form #16230.000311								
							SUBTOTAL : 78.24 HANDLING : 0.00 DISC/ALL : 0.00 INCM FRT : 0.00 FREIGHT : 0.00  TOTAL : 78.24USD	U.S. CURRENCY

Form 22 (PDF) Rev 1.0



Tel: +1.305.925.2600 • Fax: +1.305.507.7191 • www.KLXaerospace.com  
Remit to Address: 88289 Expedite Way, Chicago, IL 60695-0001  
Wire Instructions: KLX Inc. • JPMorgan Chase Bank New York  
ABA: 021000021 • Account: 304639273 • SWIFT: CHASUS33 • CHIP UID: 0002

INVOICE NUMBER

JHFTVE

PAGE 1 OF 2

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002409

DART AEROSPACE LTD  
1270 ABERDEEN ST  
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CANADA K6A 1K7

**SHIP TO:**

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

HIST-REPRINT

ORDER NO.		DATE	SHIP VIA	TERMS		SHIPPING TERMS		
PO038920		01/31/18	FEDX INTL ECON COLL	NET 30		FOB-WICHITA		
ITEM NO.	QUANTITY ORDERED	PART NUMBER AND DESCRIPTION		PRICE	UNIT	BACK ORDER	SHIPPED	AMOUNT
5	7	MS21920-22 CLAMP ECCN :9A991.d Country Origin: USA TARIFF: 7307.29.0090 SCHEDULE B: 7307.29.0000 MFR: VOSS INDUSTRIES INC CTRL# : 2014I13757 LOT# : 174797/A LOT QTY: 7 COUNTRY OF ORIGIN: USA These items are controlled by the U.S. Government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by U.S. law and regulations.		11.1766	EA	0	7	78.24
***CONTINUED***								
MATERIAL TO BE RETURNED MUST HAVE PRIOR AUTHORIZATION BY KLX INC.								

ALL ITEMS ARE SUBJECT TO A 100% RESTOCKING CHARGE.

SHIPPED FROM: 10900 E 26TH ST N., WICHITA, KS 67226

DUPLICATE INVOICE

BY RECEIVING DELIVERY OF THE ITEMS COVERED BY THIS INVOICE, BUYER AGREES TO THE TERMS AND CONDITIONS OF SALE AT:  
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CANADA K6A 1K7

HIST-REPRINT

ORDER NO.		DATE	SHIP VIA	TERMS		SHIPPING TERMS		
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ITEM NO.	QUANTITY ORDERED	PART NUMBER AND DESCRIPTION		PRICE	UNIT	BACK ORDER	SHIPPED	AMOUNT
		Ultimate Destination DART AEROSPACE LTD 1270 ABERDEEN ST HAWKESBURY ON K6A 1K7 CANADA  *** SHIPPED 1 CTN *** # 1=CTN 2.00 Lb / 0.91 Kg 582264095489 FREIGHT ACCT# 15179324-0 TEL# 613-632-3336  DIMENSIONS: 6X6X4						
awil	B88Y05	SHIPPED ON 01/31/18						
form #	16230.000311							
								SUBTOTAL : 78.24
								HANDLING : 0.00
								DISC/ALL : 0.00
								INCM FRT : 0.00
								FREIGHT : 0.00
								TOTAL : 78.24USD
								U.S. CURRENCY
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ORDER NO.		DATE	SHIP VIA	TERMS		SHIPPING TERMS	
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ITEM NO.	QUANTITY ORDERED	PART NUMBER AND DESCRIPTION	PRICE	UNIT	BACK ORDER	SHIPPED	AMOUNT
5	7	MS21920-22 TARIFF: 7307.29.0090 SCHEDULE B: 7307.29.0000 Description CLAMP ECCN :9A991.d MFR: VOSS INDUSTRIES INC CTRL#: 2014I13757 LOT#: 174797/A LOT QTY: 7 Country of Origin USA  <i>These items are controlled by the U.S. Government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by U.S. law and regulations.</i>  Ultimate Destination DART AEROSPACE LTD 1270 ABERDEEN ST HAWKESBURY ON K6A 1K7 CANADA	11.1766	EA	0	7	78.24
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PO038920		01/31/18	FEDX INTL ECON COLL	NET 30	FOB-WICHITA		
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INVOICE#.....	JHFTVE						
ORDER#.....	B88Y05						
						SUBTOTAL :	78.24
						HANDLING :	0.00
						DISC/ALL :	0.00
						INCM FRT :	0.00
						FREIGHT :	0.00
						TOTAL :	78.24USD
							U.S. CURRENCY
tre	B88Y05	SHIPPED ON 01/31/18					
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Vice President of Quality



## AS9100 AND ISO 9001 ACCREDITED

**Voss**2168 WEST 25TH STREET • CLEVELAND, OHIO 44113-4172  
PHONE: 216-771-7655 • FAX 216-771-2887PACKING SLIP AND  
CERTIFICATION OF COMPLIANCEDATE: Sep 10, 2014  
PACKING SLIP NO: 432679 C  
JOB NUMBER: 174797/ASold to:  
B/E AEROSPACE CONSUMABLES MGMT  
ATTN ACCOUNTS PAYABLE  
PO BOX 025263  
MIAMI FL 33102-5263Ship to:  
B/E AEROSPACE CONSUMABLES MGMT  
ATTN RECEIVING  
9835 NW 14TH STREET  
MIAMI FL 33172

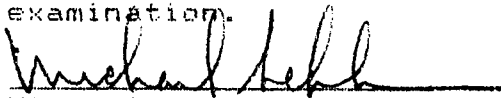
Cust No.	Customer P.O. No.	Ship Date	Ship Via	F.O.B.
51310/00	OXTA15	9/10/14	RPS	VOSS PL

Our Order NO.	Order Date	Sales Rep	Terms
174797/A	5/09/14	R7	NET 30 DAYS

Qty.	Qty.	Part/		
Ordered	Shipped	Description		UM
500	500	MS21920-22	REV-D	EA
		BAND CLAMP		
		Voss Internal #: 0454743		
		MS21920-22 REV D		
		ITEM #1		
		FEDEX GROUND COLLECT		
		ACCT #0331-0149-0		
		2 CTNS @ 28# EA		
		2 CTNS @ 250 PCS EA		

All parts comply to specialty metal DFAR requirements  
All parts manufactured in USA

We hereby certify that parts and/or materials included in the above shipment have been manufactured and/or processed in compliance with all applicable purchase order and drawing specifications. In addition, data of chemical, physical and mechanical properties, where required, are on file for examination.

  
Michael Schleckman, Quality Manager  
E-mail: mschleckman@vossind.com

\*\* BAR CODE LABEL NEEDED \*\*

ITAR/EAR EXPORT CONTROLS MAY APPLY PER FEDERAL REGULATIONS (22 CFR 120-130)

PLEASE DO NOT ASSUME ANY DEBITS UNTIL VOSS CREDIT IS AUTHORIZED.

WE HEREBY CERTIFY THAT THESE GOODS PRODUCED IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE SECTIONS 6, 7 AND 12 OF THE FAIR LABOR STANDARDS ACT, AS AMENDED, AND OF REGULATIONS AND ORDERS OF THE UNITED STATES DEPT. OF LABOR ISSUED UNDER SECTION 14 THEREOF.

## EEO CLAUSE from EXECUTIVE ORDER 11246

EQUAL EMPLOYMENT OPPORTUNITY: The Equal Employment Opportunity clause in Section 202, Paragraphs 1 through 7 of Executive Order 11246, as amended, relative to equal employment opportunity and the implementing Rules and Regulations of the Office of Federal Contract Compliance and the affirmative action clauses set forth in 41C.F.R. 60-250.4 and 41C.F.R. 60-741.4 relating to disabled veterans, veterans of the Vietnam era and handicapped individuals are incorporated herein by specific reference.

## Chemical / Physical Report

### Raw Material, Specifications and Special Process(es), Functional Testing

Page 1 of 1

Item No.	1. Date November 30, 2015	2. Customer Name KLX INC		3. Customer Purchase Order Number OXTA15		4. Job # (SWO) 174797/A
	5. Quantity Shipped 500	6. Customer Part Number MS21920-22		7. Voss Part Number MS21920-22		8. Mfg Date N/A
	9. Material or Process Name	10. Specification Number	11. Special Process Supplier Code	12. Vendor	13. SWO / HPO	14. Certificate Number
1	BAND	AMS 5518	N/A	STAINLES STEEL	174797A	947303
2	TONGUE	AMS 5518	N/A	UNITED	734115	942611U
3	TRUNNION BODY	AMS 5901	N/A	STAINLESS SALES	734504	942673Q
4	TRUNNION CAP	AMS 5901	N/A	STAINLESS SALES	733864	944929B
5	NUT	AMS 5737	N/A	ASC INDUSTRIES	174797A	940025D
6	T-BOLT	VS902001	N/A	CENTRAL WIRE	734425 733372	939760A
7	WRAPPER	AMS 5901	N/A	STAINLESS SALES	733115	944929A
15. Special Processes						
8	HEAT TREAT T-BOLT	VS901012	N/A	HTG	733372	945472
9	FPI TRUNNION	ASTM E1417	N/A	VOSS IND	734504	734504
10	FPI T-BOLT	ASTM E1417	N/A	VOSS IND.	733372	733372

C

DWRD

Cert Number 57842-4  
Test Reference 8571

7/3/2014

VOSS INDUSTRIES, INC.  
2168 W. 25TH STREET  
CLEVELAND, OH 44113-4172Issued from  
TOT Stainless Steel Inc. Michigan  
8300 Niles Road  
Sterling Heights, MI 48314Sold To: VOSS INDUSTRIES, INC., 2168 W. 25TH STREET, CLEVELAND, OH 44113-4172  
Ship To: VOSS INDUSTRIES, INC., 2168 WEST 25TH STREET, CLEVELAND, OH 44113Customer 122230/0  
Our Order 16082-1-1Your Order  
Packing ListReference  
947303 (8/21/2014)  
57842-1 (7/3/2014)

Product Information

STAINLESS COIL 301 (8.0) 1/2 HARD  
0.0250" Nom x 0.625"Heat  
7620169Tag  
128694Pcs  
10LBS  
812

Part 10CAAC0250625BP1A

## Chemical Composition

C	Mn	P	S	Si	Cr	N	Mo
0.089	1.622	0.027	0.0032	0.443	17.78	6.17	0.25
0.066	0.64						

## Physical Tests

Rockwell C	Tensile (ksi)	Yield (ksi)	Elongation (in)
37	165,540	129,840	38.85

AMS 5518 REV L

MADE IN USA  
DFARS COMPLIANT  
ROHS COMPLIANT

MERCURY FREE MATERIAL

MATERIAL ACCEPTED

VOSS PO/LOT TRACE 947303

DATE 7/23/14

INSPECTED  
BY

08

Peggy S. Collins (Agent) - Quality Manager

7/3/2014 02:06 PM

1



AK Steel Corporation  
Metallurgical Test Report  
Rockport Works  
6500 North US 231  
Rockport, IN 47635 U.S.A.

Page 1

Load No. 7605950

Srn No. 7605950

CUSTOMER

TCT STAINLESS STEEL-MICHIGAN  
A COMPANY OF TAD METALS INC  
6300 NINETEEN MILE ROAD  
STERLING HGTS, MI 48314

SHIP TO

TCT STAINLESS STEEL INC.  
6300 NINETEEN MILE  
STERLING HGTS, MI 48314

MILL ORDER NO.

253508-0893

PROCESSOR ORDER NO.

MI-222-PK

BUYERS ORDER NO.

MI-222-PK

PART NO.

ENGLISH UNITS --PRODUCT-- METRIC UNITS  
0321 NOM 48.000 X COIL

LIFT ID	PIECE	HEAT	PARENT LIFT ID	NET WEIGHT	OUTSIDE PROCESSOR ID
713922-01B	1	7520169	713922-01B	19,710 LBS. 8,940 KG.	488019582
TOTAL LIFTS	TOTAL PIECES			TOTAL NET WEIGHT	
1	1			19,710 LBS. 8,940 KG.	

L-Ladle Analysis of Heat

P-Product Analysis of Parent Coil

CHEMICAL ANALYSIS

ID	C	MN	P	S	SI	CR	NI	MO	N	CU						
L 7520169	.089	1.622	.027	.0032	.443	17.78	6.17	.25	.0660	.64						

SHIPPING DATE: 06/06/2012

REMARKS

NO INTENTIONAL ADDITIONS OF MERCURY OR MERCURY COMPOUNDS WERE  
MADE OR USED THROUGHOUT THE PROCESSING AND TESTING OF THIS MATERIAL.  
MATERIAL FREE OF RADIOACTIVE ISOTOPES

PRODUCT DESCRIPTION

CR SHY TYPE 301 STAINLESS #2B FINISH SLIT EDGE \* ASTM A 240-11 (UNS S30100) \* ASTM A 480-11A EX PARA 25.1.1.3 COIL WILL BE TAGG  
ED ON OUTSIDE ONLY \* ASME SA-240 SECTION II PART A 2011 ADDENDA \* ASME SA-480 SECTION II PART A 2011 ADDENDA \* AMS 5901C ALL TEC  
HNICAL REQUIREMENTS HAVE BEEN MET UNLESS AGREED TO OR NOTED OTHERWISE. \* RB 92 MAX \* .75% MAX COPPER

PARENT LIFT ID	POS	DIR (L, T, D)	COND	% ELONG	ELONG METHOD	ELONG GAUGE LENGTH	TENSILE STRENGTH (KSI)	Y.S. .2% OFFSET (KSI)	ROCKWELL HARDNESS TAIL	ROCKWELL HARDNESS FRONT
713922-01B	T	T	A.S.T.M	62.3	MEASURED	2 Inch	111.7	47.5	BW 88	BW 88
PARENT LIFT ID	POS	DIR (L, T, D)	COND	BEND 180 IT						
713922-01B	T		A.S.T.M	PASS						

THE CHEMICAL ANALYSES AND PHYSICAL OR MECHANICAL TESTS REPORTED ABOVE ARE CORRECT  
AS CONTAINED IN THE RECORDS OF THE CORPORATION.

ALL TESTING IS DONE IN ACCORDANCE WITH A.S.T.M. STANDARDS UNLESS OTHERWISE NOTED

AK Steel Corporation

MRQ00049 5/99

Program Version LM4098 L11

THIS CERTIFIED TEST REPORT HAS BEEN DELIVERED TO A CONSIGNEE OF MATERIAL PURCHASED FROM AK  
Steel Corporation. TO AVOID THE POSSIBILITY OF ITS MISUSE ON DELIVERY OF THE REPORT TO A  
THIRD PARTY IT MUST BE RE-CERTIFIED BY AND UNDER THE NAME OF SUCH CONSIGNEE

SIGNED

R. A. WEST

QUALITY MANAGER

DATE 06/06/2012 TIME 11:06 PM

UNITED PERFORMANCE METALS  
This is to certify that in accordance with the records in  
our files the material shipped on your purchase order  
conforms to the following.

Size: 305 X COIL  
P.O.: 842811 REL# 18 ✓  
Part#: 10CAAC02500208P-1A  
Sales #: 01224772  
Quantity: 9

Description: 301 1/2 HD .024-.028 #1 SPEC TENS  
Customer: Voss INDUSTRIES INC.  
Shipped: 08/14/2014  
Heat: 3686

*Katie Clark*

Katie Clark



# METALLURGICAL TEST REPORT

6870 Highway 42 East  
Ghent, KY 41045-9615  
(502) 347-6000

Certificate: 873756 01

Customer: 0018 001

Date: 9/25/2013 Page: 1

Steel: 301

Finish: TR 1/2 Hard

Your Order: 01023153

NAS Order: AN 0582628 01

Corrosion: ASTM A262/10 A;180Bend-OK

## PRODUCT DESCRIPTION:

STLS STL COIL, 1/2 HARD UNS 30100  
ASTM A240/13a,A480/13,A666/10; ASME SA240/10,SA480/10,SA666/10  
AMS 5518L X MRX; MIL-S-5059D AMD3-1/2HARD(X CRWN MEAS)  
HD Q08766D-1/2HARD(X MAG PERM)  
PHI 301 1/2HD

## REMARKS:

Mat'l is Free of Mercury Contamination. No weld repairs.  
EN 10204:2004 3.1; RoHS 1 & 2 Compliant  
Material is Free of Radioactive Contamination  
NAS Steel Making Process: EAF, AOD, & Cont. Casting  
Product Mfg. by a Quality Mgt. Sys. in Conf. w/ISO 9001  
\*Melted & Manufactured in the USA; Mat'l is DFARS Compliant  
Material is tempered. ✓

Product ID	Supplier ID	Thickness	Width	Weight	-----Length-----	Mark	Pieces	COMMODITY CODE
04J6M5 B	* 04J6M5	.0250	36.0000	25,800	COIL	8382.0 11	1	

## CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan) Chemical analysis per ASTM A751/08

HEAT Supplier#	CM	C %	CR %	CU %	NI %	MO %	N %	SI %	P %	S %
J6N5 J6M5	US	.0903 /	17.1285 ✓	.3775 ✓	1.0080 ✓	.2400 ✓	.0348	7.0655 ✓	.0305 ✓	.0010 ✓
Lab Check:		< .0001	17.1430	.3800	1.0050	.2490	< .0001	7.0810	.0290	< .0001
		SI %								
		.4520 /								
Lab Check:		.4210								

## MECHANICAL PROPERTIES

Product Id	Supplier Id	1 d o i c r	UTS KSI	.2% YS KSI	ELONG %-2"	Tail Hard	D Per F.H.	Hard-4 R45N
04J6M5 B	04J6M5	F T	166.00	134.86	23.55	19.00	1.92	41.50

REVIEWED/APPROVED BY UPM QC

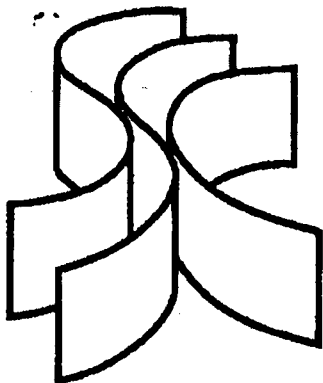
SPEC: AMS 5518L

BY: PL DATE 10-31-13 TOTAL PAGES 1

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical  
Dept. Mgr. *[Signature]*  
ERIC HESS

9/27/2013

**STAINLESS SALES CORPORATION**

3301 South Justine St  
Chicago, Illinois 60608  
Phone 800.621.0872  
Phone 773.247.9060  
Fax 773.247.7236

**ISO/TS 16949****Certificate of Analysis**

To VOSS INDUSTRIES  
2168 WEST 25TH STREET  
CLEVELAND, OH 44113

<b>MATERIAL ACCEPTED</b>	Date: 12/16/13
	Customer PO No: 942673-15
	Customer Part No: 10CAAA0500625DR3
	SSC Order No: 0221963
VOSS PO/LOT TRACE 942673-15	
DATE 12/18/13	
INSPECTED	
BY	

Description  
or  
Material

301 ANN .050 X 0.6250 X COIL

**Chemical Properties (%)**

C	Mn	P	S	Si	Co	Cb	Nb
.0900	1.0400	.0300	.0005	.4800			

Cr	Ni	Cu	Mo	Ti	Al	N	
17.1000	7.0600	.4000	.2800			.0400	

**Physical Properties**

Heat Number	Tensile (psi)	Yield (psi)	% Elongation	% Red Area	Hardness	Grain	R-Val	N-Val
981818	121000	47900	64.000	0.000	RB86	0.000	0.000	0.000

Remark: AMS 5901-92 REV. C/VS 902007 - REV D.  
BEND TEST 180° X T  
DFARS COMPLIANT

Alfredo Rosario  
Quality Assurance Manager

We hereby assert that the above data is a true reproduction of that furnished  
by our source of supply as contained in the records of the corporation.

**NOTICE OF SHIPMENT/  
PACKING LIST**



**CERTIFICATE OF TEST**

40870-00 AL 81807-0213  
12/6

CUST. ORDER NO. & DATE 28443		CUST. CODE 10/24/13 844546	ACCEPTING MILL VANDERGRIFT, PA	SHIPPER NO. 483335	PRODUCT CODE 13020102120000	MILL ORDER NUMBER 30-103-608	DATE SHIPPED 12/06/13
FORMS DISTRIBUTION SOLD TO 3 SHIP TO 1 SPEC 1		REPEAT ORDER 01330-1	DO RATE 18	GOVT. CONTRACT	MAT'L 1110 VANDERGRIFT	SHIPPING LOCATION PA	INVOICE 657436
STAINLESS SALES CORP 3301 S. JUSTINE STREET CHICAGO IL 60608		PRIME SEC. DSO DSO 521	STAINLESS SALES CORPORATION 2310 W 58TH STREET CHICAGO IL 60636				

GRADE AND SPECIFICATIONS  
"ATI 301" STAINLESS STEEL SHEET C R COILS ANNEALED 2B FIN MILL EDGE (ASME-SA-480 ED 2013) (ASTM-A-480-13)  
(ASTM-A-262-13 PRACTICE E) (ASTM-A-240-13A) (AMS 5901C)

CARRIER - SUNTECK TRANSPORTATION AN

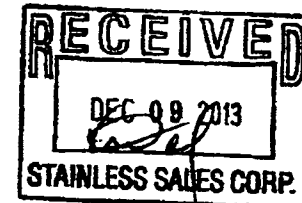
ITEM	PCS	DIMENSIONS W/G/L	HEAT #	COIL #	TEST #	GROSS	TARE	NET	THEO	TAG #/	CD	SKID #
001	1	49.8125/.050/2278.	981818	11123N114	0812710	19515		19515		287293		
C CUST IDENTITY 301B050X48MWSCR6												
1 COIL						19515		19515				

DIST: EMAIL INVOICE AND S/N TO INVOICING@STAINLESSSALES.COM

TYPE HEAT/TEST (WT %)	C	MN	P	S	SI	CR	NI	MO	CU	N
HEAT 981818	.09	1.04	.030	.0005	.48	17.10	7.06	.28	.40	.04
TEST LOCATION	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI

ITEM TEST NO	YIELD PSI *	TENSILE PSI	% ELONG IN 2"	% R/A	HARDNESS	BEND	A 262	PR E	SIZE	HARDENABILITY
001 0812710	T 47900.	121000	64.	NR	86.HRBW	T PASS	PASS		NR	
TEST LOCATION	TC	TC	TC	TC	TC	TC	TC			

\* Y.S. BY 0.2% OFFSET METHOD



NR = DATA NOT REQUIRED  
GRADE VERIFICATION WAS CARRIED OUT SPECTROSCOPICALLY

DIN EN 10204:2005 - 3.1 CERTIFICATE DOES NOT INDICATE PED APPROVAL FOR THIS MATERIAL.

MATERIAL MELTED AND ROLLED IN THE UNITED STATES AND COMPLIES WITH DFARS, SECTION 252.225-7008.

PAGE 01 - CONTINUED ON PAGE 02

12/06/13 11:21:04

**CONSIGNEE-Please Note-**This consignment was turned over to carrier in first class condition, being correctly loaded, at which time our responsibility for loss or damage in shipment ceased. For your protection please examine shipment as it arrives. If any shortage or damage is discovered, have a full description made by transportation agent on waybill before signing.

Material Safety Data Sheets for this product have been supplied to your Purchasing Department. For an additional copy phone 724-225-0000. CAUTION: Processing dust, fumes, dust, or solutions may cause lung disease. See Material Safety Data Sheets for further information.

**WARNING**  
Les fiches d'information-sécurité de ce produit ont été fournies à votre département chargé des achats. Pour obtenir des exemplaires supplémentaires veuillez téléphoner au numéro suivant 724-225-0000. Attention: les traitements entraînant la production de vapeurs, poussières, ou solutions peuvent, être cause de maladies pulmonaires. Pour plus de renseignements se référer aux fiches d'information-sécurité.

This above is a true copy of data on file. The material and test results conform to the sales contract and specification(s) as set forth in Allegheny Ludlum's Order Acknowledgment.

Stephen White  
Director, Corporate Quality Assurance

1

**NOTICE OF SHIPMENT/  
PACKING LIST**



AL 6168-S 0213

**CERTIFICATE OF TEST**

CUST. ORDER NO. & DATE 28443		CUST. CODE 10/24/13 844546	ACCEPTING MILL VANDERGRIFF, PA	SHIPPER NO. 403335	PRODUCT CODE 13020102120000	MILL ORDER NUMBER 30-103-608	DATE SHIPPED 12/06/13
FORMS DISTRIBUTION SOLD TO → 3 SHIP TO → SPEC 1 SOLD TO		REPEAT ORDER 01330-1	DO RATE 18	GOVT. CONTRACT	MATL 1110	SHIPPING LOCATION VANDERGRIFF PA	INVOICE 657436
STAINLESS SALES CORP 3301 S. JUSTINE STREET CHICAGO IL 60608		PRIME SEC. DSO DSO 521	STAINLESS SALES CORPORATION 2310 W 58TH STREET CHICAGO IL 60636				

GRADE "ATI 301" STAINLESS STEEL SHEET C R COILS ANNEALED 2B FIN MILL EDGE CARRIER - SUNTECK TRANSPORTATION AN

THIS DIN EN 10204:2005 - 3.1 CERTIFICATE OF TEST SHALL NOT BE REPRODUCED EXCEPT IN FULL. FEDERAL LAW PROHIBITS THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTRIES ON THE CERTIFICATE AND MAY BE PUNISHABLE AS A FELONY UNDER FEDERAL LAW. ATI AL HOLDS SEVERAL QUALITY CERTIFICATIONS THAT INCLUDE ISO-9001, AS9100, NADCAP, AND ISO/IEC 17025. MATERIAL WAS MANUFACTURED IN ACCORDANCE WITH THE ATI AL QUALITY MANUAL REVISION 22 DATED 7/10/2013.

ATI ALLEGHENY LUDLUM PERFORMS CHEMICAL ANALYSIS BY THE FOLLOWING TECHNIQUES:  
C, S BY COMBUSTION/INFRARED  
N, O, H BY INERT FUSION/THERMAL CONDUCTIVITY  
MN, P, SI, CR, NI, MO, CU, CB, CO, V BY WDXRF  
B BY OES  
AL AND TI ( $\geq 0.10\%$ ) BY WDXRF, OTHERWISE BY OES  
PB, BI, AG BY GFAA

TESTING WAS PERFORMED AT THE FOLLOWING LOCATIONS:  
MI = ATI-ALLEGHENY LUDLUM; 950 TENTH STREET; MIDLAND, PA 15059  
TC = ATI-ALLEGHENY LUDLUM; 1300 PACIFIC AVENUE; NATRONA HEIGHTS, PA 15065

FOR ACCESS TO ONLINE CERTIFICATES OF TEST  
REGISTER AT WWW.ALCEXTRA.COM

PAGE 02 - FINAL PAGE.

12/06/13 11:21:04

**CONSIGNEE—Please Note—**This consignment was turned over to carrier in first class condition, being correctly loaded, at which time our responsibility for loss or damage in shipment ceased. For your protection please examine shipment as it arrives. If any shortage or damage is discovered, have a full description made by transportation agent on waybill before signing.

**WARNING**  
Material Safety Data Sheets for this product have been supplied to your Purchasing Department. For an additional copy phone 724-225-8900. CAUTION: Processing that makes fumes, dust, or solutions may cause lung disease. See Material Safety Data Sheets for further information.

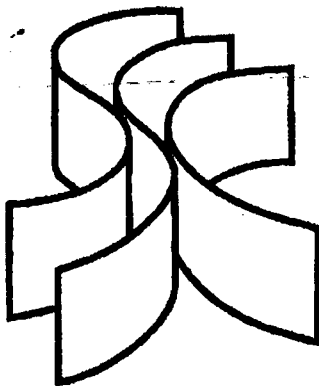
Les fiches d'information—sécurité de ce produit ont été fournies à votre département chargé des achats. Pour obtenir des exemplaires supplémentaires veuillez téléphoner au numéro suivant 724-225-8900. Attention: les traitements entraînent la production de vapeurs, poussières, ou solutions peuvent être cause de maladies pulmonaires. Pour plus de renseignements se référer aux fiches d'information—sécurité.

The above is a true copy of data on file. The material and test results conform to the sales contract and specification(s) as set forth in Allegheny Ludlum's Order Acknowledgment.

Ralph Wolf  
Director, Corporate Quality Assurance

1





# STAINLESS SALES CORPORATION

3301 South Justine St  
Chicago, Illinois 60608  
Phone 800.621.0872  
Phone 773.247.9060  
Fax 773.247.7236

ISO/TS 16949

## Certificate of Analysis

### MATERIAL ACCEPTED

VOSS PO/LOT TRACE 944929 B

DATE 12/11/13

INSPECTED  
BY



Date: 12/05/13

Customer PO No: 944929-2 ✓

Customer Part No: 10CAAA0401930DR3

SSC Order No: 0221959

To VOSS INDUSTRIES  
2168 WEST 25TH STREET  
CLEVELAND, OH 44113

Description  
Of  
Material

301 ANN .040 X 1.9300 X COIL

### Chemical Properties (%)

C	Mn	P	S	Si	Co	Cb	Nb
.0900 ✓	1.2300 ✓	.0270 ✓	.0010 ✓	.5400 ✓			

Cr	Ni	Cu	Mo	Ti	Al	N	
17.2400 ✓	7.0600 ✓	.3000 ✓	.2300 ✓			.0400	

### Physical Properties

Heat Number	Tensile (psi)	Yield (psi)	% Elongation	% Red Area	Hardness	Grain	R-Val	N-Val
980136 ✓	120000 ✓	47400 ✓	62.000 ✓	0.000	RB81 ✓	0.000	0.000	0.000

Remark: AMS 5901-92 REV. C/VS 902007 REV D  
BEND TEST 180 1XT #3 SLIT EDGE.  
DFARS COMPLIANT

Alfredo Rosario  
Quality Assurance Manager

We hereby assert that the above data is a true reproduction of that furnished  
by our source of supply as contained in the records of the corporation.

**NOTICE OF SHIPMENT/  
PACKING LIST**



45578-00 AM 11/8  
**CERTIFICATE OF TEST**

CUST. ORDER NO. & DATE: 26977 39/24/12 244546 VANDERGRIFT, PA. 558112 13020102120000 39-892-021 11/02/12  
FORMS DISTRIBUTION: 1 TO STAINLESS SALES CORP 3301 S. JUSTINE STREET CHICAGO IL 60609  
PRIME SEC. DSO DSO 521  
SHIP TO: 1118 VANDERGRIFT PA 639780  
STAINLESS SALES CORPORATION 2310 W 58TH STREET CHICAGO IL 60636

GRADE AND SPECIFICATIONS: "ATI 301" STAINLESS STEEL SHEET C R COILS ANNEALED 2B FIN MILL EDGE (AMS 3901C) (ASME-SA-240 ED 2010)  
CARRIER - GROSS, RONALD, INC.

ITEM	PCS	DIMENSIONS W/G/L	HEAT #	COIL #	TEST #	GROSS TARE NET	THED	TAG #/ CD	SKID
201B	1	48.012/.0401/2839.	980136	09272N037	8798504	18970	18970	897153	
C CUST IDENTITY 301B0401X48MESPCMH									
1 COIL						18970	18970		

DIST: EMAIL INVOICE AND S/N TO INVOICING@STAINLESSSALES.COM

TYPE HEAT/TEST	C	MN	P	S	SI	CR	NI	MO	CU	N
HEAT 980136	.09	1.23	.027	.001	.54	17.24	7.06	.23	.30	.04
TEST LOCATION	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI

ITEM TEST NO	YIELD PSI *	TENSILE PSI	% ELONG IN 2"	% R/A	HARDNESS	BEND	GRAIN SIZE	HARDENABILITY
201B 8798504	T 47400	120000	62	NR	69.HR30TW	T PASS	NR	NR
TEST LOCATION	TC	TC	TC	TC	69.HR30TW	TC		

\* Y.S. BY 0.2% OFFSET METHOD

NR = DATA NOT REQUIRED  
GRADE VERIFICATION WAS CARRIED OUT SPECTROSCOPICALLY

DIN EN 10204:2005 - 3.1 CERTIFICATE DOES NOT INDICATE PED APPROVAL FOR THIS MATERIAL.

MATERIAL MELTED AND ROLLED IN THE UNITED STATES AND COMPLIES WITH DFARS JANUARY 2010 EDITION, SECTION 252.225-7000.

PAGE 01 - CONTINUED ON PAGE 02 REPRINT

11/02/12 10:33:55

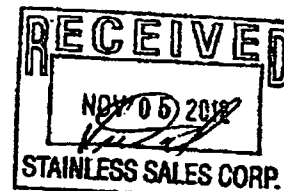
**COMPLAINTS—Please Note—**This consignment was turned over to you in best case condition, being correctly loaded, at which time the responsibility for loss or damage to shipment ceased. For your protection, please examine shipment as it arrives. If any shortage or damage is discovered, have a full description made by transportation agent on waybill before signing.

**Material Safety Data Sheets** for this product have been supplied to your Purchasing Department. For an additional copy phone 724-225-0800. CAUTION: Processing that involves heat, dust, or solutions may cause lung disease. See Material Safety Data Sheets for further information.

**Les fiches d'information—sécurité** de ce produit ont été fournies à votre département chargé des achats. Pour obtenir des exemplaires supplémentaires veuillez téléphoner au numéro suivant 724-225-0800. Attention: les traitements entraînant la production de vapeurs, poussières, ou solutions peuvent, être causes de maladies pulmonaires. Pour plus de renseignements se référer aux fiches d'information sécurité.

This above is a true copy of data on file. The method and test results conform to the above contract and specification(s) as set forth in Allegheny Ludlum's Order Acknowledgment.

Stephen Watt  
Director, Customer Quality Assurance



1

**NOTICE OF SHIPMENT/  
PACKING LIST**



**CERTIFICATE OF TEST**

AL 0100-4 1211

QUOT. ORDER NO. & DATE

26977

09/04/12 844346

CUST. ORDER

VANDERGRIFT, PA.

558112

SHIP TO

13020102120000

SHIP TO

30-092-021

SHIP TO

3  
TO

FOR DISTRIBUTION

3 SHIP TO

1

SOLD TO

STAINLESS SALES CORP  
3301 S. JUSTINE STREET  
CHICAGO IL 60608

922001-  
PRIME SEC.

DSO DSO  
521

GOVT. CONTRACT

1110 VANDERGRIFT  
SHIP TO

STAINLESS SALES CORPORATION  
2310 W 38TH STREET  
CHICAGO IL 60636

INVOICE  
059960

**GRADE AND SPECIFICATIONS**

"ATI 301" STAINLESS STEEL SHEET C R COILS ANNEALED 2B FIN MILL EDGE (AMS 5901C) (ASME-SA-240 ED 2010) (ASTM-A-240-12)

CARRIER - GROSS, RONALD, INC.

THIS DIN EN 10204:2005 - 3.1 CERTIFICATE OF TEST SHALL NOT BE REPRODUCED EXCEPT IN FULL. FEDERAL LAW PROHIBITS THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTRIES ON THE CERTIFICATE AND MAY BE PUNISHABLE AS A FELONY UNDER FEDERAL LAW. ATI AL HOLDS SEVERAL QUALITY CERTIFICATIONS THAT INCLUDE ISO-9001, AS9100, NADCAP, AND ISO/IEC 17025. MATERIAL WAS MANUFACTURED IN ACCORDANCE WITH THE ATI AL QUALITY MANUAL REVISION 20 DATED 02/24/2012.

ATI ALLEGHENY LUDLUM PERFORMS CHEMICAL ANALYSIS BY THE FOLLOWING TECHNIQUES:

C, S BY COMBUSTION/INFRARED  
A, O, H BY INERT FUSION/THERMAL CONDUCTIVITY  
CR, P, SI, CR, NI, MO, CU, CB, CO, V BY WDXRF  
B BY OES  
AL AND TI (>=0.10%) BY WDXRF, OTHERWISE BY OES  
PB, BI, AG BY CFAA

TESTING WAS PERFORMED AT THE FOLLOWING LOCATIONS:

ME = ATI-ALLEGHENY LUDLUM; 950 TENTH STREET; MIDLAND, PA 15059  
TC = ATI-ALLEGHENY LUDLUM; 1300 PACIFIC AVENUE; NATRONA HEIGHTS, PA 15065

FOR ACCESS TO ONLINE CERTIFICATES OF TEST  
REGISTER AT WWW.ALCEXTRA.COM

PAGE 02 - FINAL PAGE.

REPRINT

11/02/12 10:33:55

**CONSIGNEE-Please Note-**This consignment was turned over to carrier in first class condition, being accurately loaded, at which time our responsibility for loss or damage in shipment ceases. For your protection please examine shipment as it arrives. If any shortage or damage is discovered, have a full description made by transportation agent on waybill before signing.

**Material Safety Data Sheets** for this product have been supplied to your Purchasing Department. For an additional copy please call 224-224-3000. CAUTION: Processing that creates fumes, dust, or solutions may cause lung disease. See Material Safety Data Sheets for further information.

**WARNING**

Les fiches d'information-sécurité de ce produit ont été fournies à votre département chargé des achats. Pour obtenir des exemplaires supplémentaires veuillez téléphoner au numéro suivant 724-224-3000. Attention: les traitements entraînant la production de vapeurs, poussières, ou solutions peuvent être cause de maladies pulmonaires. Pour plus de renseignements se référer aux fiches d'information-sécurité.

The above is a true copy of data on file. The material and test results conform to the sales contract and specification(s) as set forth in Allegheny Ludlum's Order Acknowledgment.

Allegheny Ludlum  
Product Corporate Quality Assurance

1

# ASC INDUSTRIES

A Division Of ASC INTERNATIONAL, INC.

1227 CORPORATE DRIVE WEST  
ARLINGTON, TEXAS 76008

PHONE: (817) 640-1300  
FAX: (817) 648-2688

S 908700-00  
O VOSS IND.  
L 2168 W. 25TH  
D

T CLEVELAND, OH 44113  
O

ASC INDUSTRIES  
1225 CORPORATE DRIVE WEST  
ARLINGTON, TEXAS 76008

S VOSS IND.  
H 2168 W. 25TH  
I  
P

T CLEVELAND, OH  
O 44113

SALES ORDER NO.  
298859-002

F.O.B./INCOTERMS:

ARLINGTON

YOUR ORDER NO 940025

TERMS: 1/2% 10, Net 30 Days Unless Otherwise Noted

VIA

INVOICE DATE

1/2% 10 DAYS NET 30

Item	Quantity Due	Quantity Shipped	Part Number	UOM
*****				
02	3640	3640	MS20500-1032	E
Description: NUT, SELF LOCKING, HEXAGON, CRES				
PENN ENGINEERING Lot#: 260277 (3640) COO: U.S.				
MFG. C OF C				
CHEM & PHYS				
*****				
03	10000	10000	MS20500-1032	E
Description: NUT, SELF LOCKING, HEXAGON, CRES				
PENN ENGINEERING Lot#: 260277 (10000) COO: U.S.				
MFG. C OF C				
CHEM & PHYS				

Gross / Net Wt

No Cuts

## \*CERTIFICATE OF CONFORMANCE\*

The material contained in this shipment was produced in accordance with applicable specification requirements and certification indicating conformance is on file subject to examination. ASC disclaims any responsibility for manufacturing or functional defects and hereby limits express or implied warranties to liability for the cost of replacing or refunding the value of this material. Buyer, in accepting delivery of this material, acknowledges awareness of such limitations of liability.

Please note that an ASC return material authorization number must be issued for all returns. Lot traceability is mandatory for all returns. Return of any merchandise will not be accepted after ninety days from date of shipment.

Signed

*Gerald Newell*

Quality Assurance Manager  
(GERALD NEWELL)

"This document is electronically signed"

DATE: 06/14/13

PACKING LIST / CERTIFICATION

TRACK #: 857458



INSPECTED

DATE 6/25/13

WMS PO/LOT TRACE 940025 LEFT BLANK

INTENTIONALLY



# ASC INDUSTRIES

A Division Of ASC INTERNATIONAL, INC.

1227 CORPORATE DRIVE WEST  
ARLINGTON, TEXAS 76008

PHONE: (817) 840-1300  
FAX: (817) 849-2686

ASC INDUSTRIES  
1225 CORPORATE DRIVE WEST  
ARLINGTON, TEXAS 76006

SALES ORDER NO.  
**298859-002**

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908700-00  
VOSS IND.  
2168 W. 25TH

CLEVELAND, OH 44113

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VOSS IND.  
2168 W. 25TH

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O CLEVELAND, OH  
44113

F.O.B./INCOTERMS:

ARLINGTON

YOUR ORDER NO 940025

TERMS: 1/2% 10, Net 30 Days Unless Otherwise Noted

VIA

INVOICE DATE

1/2% 10 DAYS NET 30

Item	Quantity Due	Quantity Shipped	Part Number	U/M
*****				
02	3640	3640	MS20500-1032	E
Description NUT, SELF LOCKING, HEXAGON, CRES.				
PENN ENGINEERING Lot#: 260277 (3640) COO: U.S.				
MFG. C OF C				
CHEM & PHYS				
*****				
03	10000	10000	MS20500-1032	E
Description NUT, SELF LOCKING, HEXAGON, CRES				
PENN ENGINEERING Lot#: 260277 (10000) COO: U.S				
MFG. C OF C				
CHEM & PHYS				

Gross / Net Wt

No Ctns

## \*CERTIFICATE OF CONFORMANCE\*

The material contained in this shipment was produced in accordance with applicable specification requirements and certification indicating conformance is on file subject to examination. ASC disclaims any responsibility for manufacturing or functional defects and hereby limits express or implied warranties to liability for the cost of replacing or refunding the value of this material. Buyer, in accepting delivery of this material, acknowledges awareness of such limitations of liability.

Please note that an ASC return material authorization number must be issued for all returns. Lot traceability is mandatory for all returns. Return of any merchandise will not be accepted after ninety days from date of shipment.

Signed

*Gerald Newell*  
Quality Assurance Manager  
(GERALD NEWELL)

DATE: 06/14/13

PACKING LIST / CERTIFICATION

INTENTIONALLY  
LEFT BLANK

TRACK #: S57458

PennEngineering



Corporate Office  
5190 Old Easton Road  
Danboro, PA 18818 USA  
Tel: 215-766-8853  
Fax: 215-766-0143  
www.pennet.com

## TEST CERTIFICATION

Customer: **ASC Industries**  
1225 Corporate Dr. W.  
Arlington, TX 76006

Cert Date: **June 10, 2013**

Lot Number: **260277**  
Order Number: **1375471**  
PO Number: **187520**  
Inspection Lot Size: **33,000**  
Quantity Shipped: **18,640**

Spiral Part Number: **MS20500-1032 Rev F**  
Part Name: **Nut, Self Locking, Hex, 1200° F**

Procurement Specification: **NASM7873 March 2000**

Material Specification: **AMS 5737**  
Type: **A286**

Material Producer: **CARTECH**  
Heat No. **566616**  
Cert S/N: **000847752**

Threads conform to AS8879 Rev D Inspected per FED-STD-H28/20 System 22  
Magnetic Permeability acceptable per ASTM A342 Method 3  
Sample FPI per ASTM E 1417 Ref Hadd-Co Inspection Lab Certification No. 18584  
Silver Plate per AMS 2410 Reference F.M. Callahan & Son, Inc. FMC Job No. 271211  
Locking Torque Test per NASM7873 Reference Lab Report DQL - 22471  
Tensile Test per NASM1312-8 Reference Lab Report DQL - 22471  
The raw material that was used to manufacture these parts was melted in the USA or a qualifying country and complies with applicable sections of DFARS 252.225.

This test certification shall not be reproduced except in full without written approval of PennEngineering. This certification shall not be used by the customer to claim product endorsement by any agency of the U.S. Government.

PennEngineering certifies that the product shipped on the above purchase order were manufactured, inspected and tested in compliance with all applicable prints and specifications. All supporting documentation is on file at PennEngineering.

Registered ISO 9001:2008, AS9100, QSLM for class 2 and class 3 threaded fasteners - Cage Code 46384  
Made in USA.

Clayton Souders  
Quality Manager

Lot 51208

**CERTIFICATE OF TESTS**

**ABNAHMEPRUEFZEUGNIS**

**CERTIFICAT DE CONTROLE**

CERT SERIAL# 000847752



**CARPENTER**

Carpenter Technology Corporation  
101 West Barn Street, Reading, Pa. 19601  
Tel: (610) 208-2000 (800) 334-4392

- THE SIGNING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47.
- THE VALUES AND OTHER TECHNICAL DATA REPRESENT THE RESULTS OF ANALYSES AND TESTS MADE BY CARPENTER TECHNOLOGY CORPORATION FROM THE TYPICAL LOT. ORIGINAL DATA RECORDS CAN BE TRACED BY REFERENCE TO THE CARPENTER ORDER NUMBER.
- MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM, ALPHA AND BETA SOURCE CONTAMINATION.
- THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF CARPENTER TECHNOLOGY CORPORATION.

10/29/12

CUSTOMER/BESTELLER/CLIENT

SELLER/VERKÄUFER/VENDUEUR PAGE 1 OF 2

PENNINGENGINEERING FASTENING  
TECHNOLOGIES

QA DEPT  
P. O. BOX 1000  
DANBORO

PA 18916

AIN

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./VERKS-NR./N° DE REFERENCE INTERNE	DATE/DATE/DATE	WEIGHT/GEWICHT/POIDS
930385DN LINE 11	W67698	10/29/12	546.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 566616

PRODUCT DESCRIPTION: A286 ANNEALED COLD FINISH SEAM FREE C HDG CL K2 HVY  
CO/BOAP

SPECIFICATION: PENNING 3-30-7286 REV A (10/29/10) EXCEPT LTR (07/05/11) PENDING  
AMS 2241 REV E (07/ /07)  
AMS 5737 REAFFIRMED REV P (07/ /12) CAPABLE OF  
PENNING QSP 6.5 REV K (10/01/11) EXCEPT LTR (11/08/11) APPROVED

SIZE 0.282000 IN. ( 7.16 MM) RD WIRE

PRIMARY HEAT CHEMISTRY (WT%): (TEST METHOD IS SHOWN IN PARENTHESIS)

C (CON) 0.03 ✓	MN (XRF) 0.28 ✓	SI (XRF) 0.16 ✓	P (OES) 0.014 ✓	LT 0.0005 ✓	CR (XRF) 13.77 ✓
NI (XRF) 24.24 ✓	MO (XRF) 1.19 ✓	CU (XRF) 0.07 ✓	CO (XRF) 0.18 ✓	AL (OES) 0.13 ✓	TI (OES) 2.10 ✓
V (XRF) 0.35 ✓	B (OES) 0.007 ✓				

MATERIAL DOES NOT EMIT IONIZING RADIATION IN EXCESS OF NATURAL RADIATION LEVELS.

PROVISIONS OF 10 CFR PART 21 AND 10 CFR PART 50 - APPENDIX B APPLY.

THIS MATERIAL WAS MANUFACTURED IN ACCORDANCE WITH CARPENTER SPECIALTY ALLOYS OPERATIONS QUALITY PROGRAM MANUAL REVISION 30, DATED 09/28/11.

CARPENTER TECHNOLOGY COMPLIES TO THE EUROPEAN DIRECTIVE (EU) 2002/95/EC.

MATERIAL SUPPLIED MEETS THE TECHNICAL REQUIREMENTS OF THE SPECIFICATION(S) NOTED ON THIS ORDER.

(T) TRANSVERSE	(L) LONGITUDINAL	
YIELD STRENGTH, (0.20 %)	KSI (MPA)	62.5 ( 431)
TENSILE STRENGTH, KSI (MPA)		89.5 ( 617)
ELONGATION IN 1.12", %		50.0

WLO  
260277  
MS20500-1032

CONTINUED ON NEXT PAGE

This certificate is made to the customer printed on this form. Carpenter neither makes, nor assumes responsibility for any representation or certification to other parties. The certificate shall not be used for any other purpose than the one for which it was issued. Carpenter Technology Corporation, Reading, PA 19601. On receipt of the certificate, the customer shall be held to the terms and conditions of the certificate. Carpenter Technology Corporation, Reading, PA 19601.

# CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

CERT SERIAL# 000847752



## CARPENTER

Carpenter Technology Corporation  
101 West Barn Street, Reading, Pa. 19601  
Tel: (610) 296-3000 (800) 331-4592

- THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47.
- THE VALUES AND OTHER TECHNICAL DATA REPRESENT THE RESULTS OF ANALYSES AND TESTS MADE ON SAMPLES COLLECTED FROM THE WORK LOT. ORIGINAL DATA RECORDS CAN BE TRACED BY REFERENCE TO THE CARPENTER ORDER NUMBER.
- MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM, ALPHA AND GAMMA SOURCE CONTAMINATION.
- THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF CARPENTER TECHNOLOGY CORPORATION.

10/29/12

CUSTOMER/RESELLER/CLIENT

SELLER/VORRAUFER/VENDOR PAGE 2 OF 2

PERMENGINERLING FASTENING  
TECHNOLOGIES  
QA DEPT  
P. O. BOX 1000  
DANBORO PA 18916

ALN

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./NEWS-NR./N° DE REFERENCE INTERNE	DATE/DATE/DATE	WEIGHT/BECHT/POIDS
930385DN LINE 11	W67698	10/29/12	546.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE :

566616

### CAPABILITY

1650 F ( 899 C ) , 02 HR OIL TREAT  
1325 F ( 718 C ) , 16 HR AIR COOL

### COMBINATION STRESS RUPTURE

TEST TEMP 1200 F ( 649 C )  
STRESS, KSI(MPA) 65.0 ( 448 )  
ELONGATION % 47.2  
HOURS 71.6

AFTER MINIMUM TIME UNDER SPECIFIED STRESS, THE STRESS RUPTURE TEST WAS OVERLOADED IN INCREMENTS AS FOLLOWS:

TOTAL HOURS STRESS KSI(MPA)  
51 70.0 ( 483 )  
63 75.0 ( 517 )

(T) TRANSVERSE (L) LONGITUDINAL  
YIELD STRENGTH, (0.20 %) KSI(MPA) 110.0 ( 758 )  
TENSILE STRENGTH, KSI(MPA) 159.0 ( 1096 )  
ELONGATION IN 2.00", % 24.0  
REDUCTION OF AREA, % 46.0  
HARDNESS, HBW 324.0 -

CHEMISTRY CHECK (WT%) AT SIZE 9.000 IN. X 9.000 IN.

	CR	NI	MO	TI	V	B
1A (TOP)	13.78	24.28	1.20	2.13	0.35	0.007
1X (BOTTOM)	13.76	24.25	1.18	2.04	0.34	0.007

MATERIAL HAS BEEN MELTED AND MANUFACTURED IN THE USA WHICH IS A QUALIFYING COUNTRY TO DFARS REQUIREMENTS 252.225-7014 WITH ALTERNATE 1 FOR QUALIFYING COUNTRY 225.872.1, SUPERSEDED BY DFARS REQUIREMENTS DFARS 252.225-7008 AND 252.225-7009.  
THIS ORDER WAS MANUFACTURED IN ACCORDANCE WITH CARPENTER SPECIALTY ALLOYS OPERATIONS QUALITY PROGRAM MANUAL, REVISION 30 DATED 09/28/11.

CARPENTER'S QUALITY MANAGEMENT SYSTEM WAS REGISTERED AS OF NOVEMBER 24, 2010 TO THE REQUIREMENTS OF ISO 9001:2008 APPROVAL CERTIFICATE 10-1385R BY PERFORMANCE REVIEW INSTITUTE. CERTIFICATE OF TEST IS PREPARED IN ACCORDANCE WITH PARAGRAPH 3.1 OF EN 10204 (DIN 50049). WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE PURCHASE ORDER AND SPECIFICATION REQUIREMENTS, AS DOCUMENTED IN THIS CERTIFICATE OF TESTS.

TEST METHODS ARE PER THE ASTM STANDARDS ON FILE AND IN EFFECT AT TIME OF ORDER ACCEPTANCE, STANDARD PRACTICES, OR AS AGREED UPON BETWEEN CARPENTER & CUSTOMER.

SHERRY L. KREIDER

ADMINISTRATOR - QUALITY

CARPENTER TECHNOLOGY CORPORATION

This certification is made to the customer's request on this form. Carpenter Technology Corporation, its subsidiaries, affiliates, agents, and representatives do not warrant the accuracy of the data reported herein. The data reported herein are the property of Carpenter Technology Corporation and are not to be used for any other purpose without the written consent of Carpenter Technology Corporation.

w/0 260277  
m320500-1032





# HADD-CO INSPECTION LAB

2420 Arnsler Street, Torrance, CA 90505

Toll Free: (888) 338-8472 Phone: (310) 325-7820 Fax: (310) 325-8855

www.haddco.com Email: NDT@haddco.com

NO. 18584

Sold To:

PENN ENGINEERING  
5180 OLD EASTON ROAD  
DANBORO, PA 18918

P.O. Number:

833377

Job/Lot #:

280277

Completion Date:

5/24/13

## CERTIFICATION

QUANTITY	PART NUMBER	DESCRIPTION
32	MS20500-1032	FPI PER ASTM E1417/E1417M-11E1 NA0026-3 MAT: CRES TYPE 1 METHOD A LEVEL 3  NO REJECTS

This is to certify that 100% of the parts under subject purchase order have been inspected by Fluorescent Penetrant Inspection in accordance with all applicable and/or purchase order requirements.

Inspector:

*Christina M. Garcia*  
CHRISTINA M. GARCIA/ LEVEL II

HAD  
PW-10

NOTE: Altering of this certification renders it void.

**F.M. Callahan & Son, Inc.**

22 Sharon Street, Malden, MA 02148

T: (781) 324-5101

F: (781) 324-1674

E: [inquiry@fmcallehan.com](mailto:inquiry@fmcallehan.com)



Chemical Processing

QF 15A-100, Rev 1  
Tom Upton, Prod Mgr, 04/28/2000

PENN ENGINEERING & MFG CORP

GENTLEMEN:

This is to certify that F.M. Callahan and Son, Inc. has processed the parts listed below in conformance with the following specification:

Silver plate .0002" per AMS 2410K and FIN-16P, Rev D.

Purchase Order: 833378

FMC Job Number: 271211

Date Shipped: 6/6/2013

<u>Quantity</u>	<u>Part Number</u>
33,000 PC	MS20500-1032 *OP135 10-32 Hex collar lock Nut WO#260277 164 LBS 4 BINS

Results of the quality assurance procedures followed are on file with F.M. Callahan and Son, Inc. and are available for your inspection on request. Testing and inspections are performed per F.M. Callahan Son, Inc's Quality Manual Rev 24. As stated above this certificate is certifying to the process only not to the testing. Testing is not performed per the specification for the following specifications: QQ-P-35C, MIL-F-485, MIL-G-45204B, ASTM B633, and AMS 2424.

Very Truly Yours,

A handwritten signature in black ink, appearing to read "Kevin Reynolds", is written over the name.

Kevin Reynolds, Quality Manager

F.M. Callahan and Son Inc.

**Penn Engineering®**  
 5190 Old Easton Highway, Danboro, PA 18916  
 Phone - (215) 766-8853, Fax - (215) 766-7366, Website - www.pennet.com

**TEST REPORT**

Group No	Part Number	W/O Number	Remarks:	Test Log No.	DQL	22471
1	MS20500-1032	260277		Date :		6/7/2013
				Req. By.:		O. Kristel
				Job Log No		
Customer				Purpose: MS20500 Requirements: REV G: Aug 29, 2012		

**FASTENER and PANEL SPECIFICATIONS**

Group	Fastener		Panel				
	Hardness	Plating Thickness	Material	Hardness	Thickness	Mtg. Hole Dia.	Punch/Die/Drilled
1							

**TEST EQUIPMENT**

Group	Installation Press Type	Punch	Anvil	Mach # / Push-out Bushing Dia.	Axial Tensile Support Dia	Torque Wrench I.D.# / Range	
1					*T6014-112803		
					T6014-113868		
					.1905"-.1945"		

**TEST RESULT SUMMARY**

Group		Axial Tensile Strength				
		lbs HI/Lo				
1		4770 / 4390				
NAS Spec.		2460 lbs				

Test Methods: NASM26027, NASM1312, NASM7673, FT8505

Threads Gaged Gage I.D.#: Before Installation? After Installation?

Photograph No. Sample Mount No.

Details: PASS - Performance meets specified requirements

\*Load rate = 2800 lbs/min

Test Performed By: M. Gontek

Date: 6/7/2013

Test Checked By: W - A. J. [Signature]

Date: 6/10/2013

This report shall not be reproduced except in full. The results relate only to the items tested.

FORM #PE-FORM42 REV.D 11/02/04 ECN# 04-221



## TORQUE TEST CERTIFICATION

WORK ORDER:

PART NUMBER:

LOT SIZE:

PROCUREMENT SPECIFICATION:  
(ATTRIBUTE SAMPLING PLAN)

280277

MS20800-1032

THREAD: .190-32 UNJF

32,325

NASM7873

REVISION: 1

Number of Samples Required: 7

MAXIMUM ON (I) / OFF (R):

MINIMUM BREAKAWAY (B):

18 INCH POUNDS

2.0 INCH POUNDS

DATE TESTED:

6/7/2013

BADGE ID:

625

DQL #: 22471

TEST RESULT: Pass (Pass or Fail)

TEST SAMPLE	FIRST CYCLE			SEVENTH CYCLE			FIFTEENTH CYCLE		
	I	B	R	I	B	R	I	B	R
1	11.7	14.1	14.1	6.9	6.8	16.0	11.2	9.8	16.1
2	11.3	12.5	12.5	4.4	5.9	7.7	4.5	5.2	13.6
3	9.1	11.9	11.9	4.3	5.7	6.7	3.5	4.6	4.6
4	10.4	11.7	11.7	4.8	6.5	7.9	4.2	5.3	7.5
5	12.9	16.0	16.0	4.6	6.1	7.3	3.8	6.2	6.2
6	10.4	12.9	12.9	5.6	7.3	7.8	3.7	5.1	6.9
7	11.9	12.3	12.3	5.0	7.8	7.8	3.1	4.7	6.0
8									
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10									
11									
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22									
23									
24									
25									
26									
27									

I = Installation Torque. B = Breakaway Torque. R = Removal Torque.

Data transcribed from original records maintained on file at PennEngineering

**Penn Engineering & Manufacturing Corp.**  
**5190 Old Easton Road, PO Box 1000**  
**Danboro, PA 18916**

**Axial Tensile Test Report (lbs)**

Part No.: MS20500-1032  
Test Log No.: DQL22471  
Work Order No.: 260277  
Material/Hardness: N/A  
Material Thk.: N/A  
Mounting Hole Dia.: N/A  
Bushing Dia.: .1905"-.1945"

Technician:  
Test Date:

M. Goritek  
06/07/2013

Sample No.	Ultimate lbf	Failure Mode
1	4770	A
2	4590	A
3	4400	A
4	4390	A
5	4480	A
6	4420	A
7	4470	A
Average	4500	
SD	136.4	
Minimum	4390	
Maximum	4770	

UTM # 9744

Failure Mode: A = Test bolt thread tensile failure.

Signed By: \_\_\_\_\_

Technician

PERTH, ON  
ERIN, ON  
DUMAS, AR  
LANCASTER, SC

613-287-3752 FAX 613-287-5817  
518-833-8632 FAX 518-833-2213  
870-382-2980 FAX 870-382-8886  
803-283-3353 FAX 803-283-8303



FOND DU LAC, WI  
UNION, IL  
PERRIS, CA

920-926-0809 FAX 920-926-0852  
815-823-2131 FAX 815-823-2126  
951-657-2108 FAX 951-943-8081

THE LEADING MANUFACTURER OF STAINLESS STEEL AND NICKEL ALLOY WIRE PRODUCTS  
EXECUTIVE OFFICES: PERTH, ON CANADA - EMAIL: [sales@centralwire.com](mailto:sales@centralwire.com)

CENTRAL WIRE  
6509 OLSON ROAD  
TEL: 815-923-2131

UNION, IL 60180-9730  
FAX: 815-923-2126

## CERTIFICATE OF CONFORMANCE

SOLD TO  
VOSS INDUSTRIES, INC.  
2168 WEST 25TH STREET  
CLEVELAND OH 44113  
USA

SHIP TO  
VOSS INDUSTRIES, INC.  
2168 WEST 25TH STREET  
CLEVELAND OH 44113  
USA

CUSTOMER'S PO NO.	TYPE OF CERT	CUSTOMER	ORDER NO.	WORK ORDER	DATE SHIPPED
939760	Customer	131265	1178474 1	4139965	11/30/12
SPECIFICATIONS: VS902001 REV. E					

ITEM DESCRIPTION		
DESCRIPTION	SPEC. CLASS	HEAT
Cold Heading A286SF SKIN PASSED Seam Free .1830 Coils Std. Copper-Moly	Melt mill Latrobe Country of origin USA	D7334
	QTY SHIP 1707	044

CHEMICAL ANALYSIS						
C .034 ✓	MN .17 /	SI .16 /	P .011 /	S .001 /	CR 14.21 /	NI 25.10 ✓
MO 1.33 /	CU .06 /	CO .06 /	AL .15 /	TI 2.18 ✓	FE Balance	B .0069 ✓
V .26 /	BI < .00001	PB < .0001				

MECHANICAL PROPERTIES						
AS SHIPPED PROPERTIES:						
TENSILE 107.000 KSI MIN	TENSILE 108.000 KSI MAX	GRAIN SIZE 7.000/ ASTM			VSS PO/LCT TRACE 939760 A	
AFTER HEAT TREAT PROPERTIES:			1325F 16 HOURS, AIR COOL			
TENSILE 172.000 KSI	YIELD 144.000 KSI	ELONGATION 21.000 %			INSPECTION 3	

\* WIRE IS DEARS 252.225-7009 COMPLIANT \*  
ITEM: 11AA182184GT

DAVID MENGE - QUALITY CONTROL SUPERVISOR

The material as shipped is free from mercury contamination. I certify the chemical analysis and physical and mechanical test results reported above are correct as contained in the records of the company.

Very truly yours,

AUTHORIZED SIGNATURE

PERTH, ON  
ERIN, ON  
DUMAS, AR  
LANCASTER, SC

813-267-3752 FAX 813-267-5817  
815-833-8632 FAX 815-833-2213  
870-382-2980 FAX 870-382-8888  
803-283-3353 FAX 803-283-6303



FOND DU LAC, WI  
UNION, IL  
PERRIS, CA

920-828-0609 FAX 820-828-0652  
815-923-2131 FAX 815-923-2126  
851-857-2106 FAX 951-943-6061

THE LEADING MANUFACTURER OF STAINLESS STEEL AND NICKEL ALLOY WIRE PRODUCTS  
EXECUTIVE OFFICES: PERTH, ON CANADA - EMAIL: [sales@centralwire.com](mailto:sales@centralwire.com)

CENTRAL WIRE  
6509 OLSON ROAD  
TEL: 815-923-2131

UNION, IL 60180-9730  
FAX: 815-923-2126

## CERTIFICATE OF CONFORMANCE

SOLD  
TO

VOSS INDUSTRIES, INC.  
2168 WEST 25TH STREET  
CLEVELAND OH 44113  
  
USA

SHIP  
TO

VOSS INDUSTRIES, INC.  
2168 WEST 25TH STREET  
CLEVELAND OH 44113  
  
USA

CUSTOMER'S PO NO.	TYPE OF CERT	CUSTOMER	ORDER NO.	WORK ORDER	DATE SHIPPED
939760	Customer	131265	1178474 1	4139965	11/30/12

SPECIFICATIONS:  
V8902001 REV. E

### ITEM DESCRIPTION

DESCRIPTION	SPEC. CLASS	HEAT
Cold Heading A286SF Melt mill. SKIN PASSED Seam Free Latrobe .1830 Coils Std. Country of origin Copper-Moly USA		D7334
	QTY SHIP 1707	044

### CHEMICAL ANALYSIS

C .034	MN .17	SI .16	P .011	S .001	CR 14.21	NI 25.10
MO 1.33	CU .06	CO .06	AL .15	TI 2.18 /	FE Balance	B .0069
V .26	BI < .00001	PB < .0001				

### MECHANICAL PROPERTIES

#### AS SHIPPED PROPERTIES:

TENSILE 107.000 KSI MIN	TENSILE 108.000 KSI MAX	GRAIN SIZE 7.000 / ASTM				
-------------------------------	-------------------------------	-------------------------------	--	--	--	--

#### AFTER HEAT TREAT PROPERTIES: 1325F 16 HOURS, AIR COOL

TENSILE 172.000 KSI	YIELD 144.000/ KSI	ELONGATION 21.000 / %				
---------------------------	--------------------------	-----------------------------	--	--	--	--

\* WIRE IS DFARS 252.225-7009 COMPLIANT \*  
ITEM: 11AA182184GT

DAVID MENGE - QUALITY CONTROL SUPERVISOR

The material as shipped is free from mercury contamination. I certify the chemical analysis and physical and mechanical test results reported above are correct as contained in the records of the company.

Very truly yours,

AUTHORIZED SIGNATURE



**LATROBE**  
**SPECIALTY METALS**  
A Carpenter Company

## CERTIFICATE OF TEST

2828 S. Ligonier St.  
Latrobe, PA 15650

Production Order Number	Wgt. Shipped	Sales Order No.	Heat No.
10406592	8688	20176319-3	D7334
Customer Order No./Req. No.	Delivery Number		
2010125	30435932		
Bill To: 502026	Ship To: 407182		
CENTRAL WIRE	CENTRAL WIRE FOND DU LAC		
TECHALLOY UNION	1795 SOUTH HICKORY STREET		
6509 OLSON ROAD	FOND DU LAC WI 54937		
UNION IL 60180			

### MATERIAL DESCRIPTION:

(TO SIZE) .343 RND COIL 1S-A288 VAR HR D.3.PRS.010.9 REV B + SAD 19665, D.3.PRS.008.9 REV F EXCEPT 300#  
MINIMUM COIL WEIGHT & .008" MAX DEFECT DEPTH, 10 CFR CH. I (1-1-08 EDITION) PART 21 - REPORTING OF DEFECTS &  
NONCOMPLIANCE INGOT #1

### Chemical Analysis Wt%:

C	Si	Mn	S	P	B	Cr	V	Ni	Mo	Co	Cu	Ti
.034	.16	.17	.001	.011	.0069	14.21	.26	25.10	1.33	.06	.06	2.18

Al	Fe	Bi	Pb
.15	BAL	<.00001	<.0001

Bismuth (Bi) and Lead (Pb) were tested at Laboratory Testing Inc., Report number TLS001-12-03-11728-1, TLS001-12-03-11927-1 & TLS001-12-03-12304-1.

### As Received:

Ultimate Tensile Strength per ASTM E8-11 & ASTM A370-11: 101.8 KSI  
This test was performed at Westmoreland Mechanical Testing & Research, Inc.,  
Report No. 2-62390.

Grain Size per ASTM E-112-10: 9

Capability Heat Treatment: 1650°F (2 hrs) WQ + 1325°F (16 hrs) AC

Room Temperature Tensile Test per ASTM E8-11 & ASTM A370-11:

Longitudinal center at .343" Rnd.

ID	UTS (ksi)	0.2TYS (ksi)	El (%in4d)	R.A. (%)	HRC
M6	165.4	116.3	24	50	37

This test was performed at Westmoreland Mechanical Testing & Research, Inc.,  
Report No. 2-63221.

Combination Stress Rupture per ASTM E292-09:

ID	Temp (°F)	Stress (ksi)	El (%in4d)	Rupture Life (hrs) <sup>^</sup>	Rupture Location
M7	1200	65	44.3	69.8	Smooth

<sup>^</sup>Upload after 48 hrs/5 KSI/every 8-10 hrs, Final stress 80 KSI.

This test was performed at Westmoreland Mechanical Testing & Research, Inc.,  
Report No. 2-63221.

Grain Size per ASTM E-112-10: 10

Testing methods for chemical analysis tested at Latrobe Specialty Steel are as follows: C,S,Mn,O & H = Combustion; Si, Mn, W, Cr, V, Ni, Mo, Co, Cu, Al, Pb, Ti, Fe & Sn = X-Ray. Balance of elements analyzed on OE. Other testing methods not listed above have been conducted per certified material specification(s).

Latrobe Specialty Steel Company is registered to Quality Management System Standards: ISO 9001 and AS9100.  
Need certs? Our air melt certs are available online at <http://www.latrobesteel.com>

We certify this material to have been manufactured, inspected, and tested; and found the results to conform to all drawing and specification requirements and order requirements as applicable. The recording of false, fictitious or fraudulent statements or entries on this document may be punishable as a felony under Federal Statute. This certificate or report shall not be reproduced except in full, without the written approval of Latrobe Specialty Steel Company.

*Paula M Platt*  
Inspection Department  
Paula M Platt - Sr Metallurgical Coordinator

05/21/2012  
Date



# CERTIFICATE OF TEST

2626 S. Ligonier St.  
Latrobe, PA 15650

Production Order Number	Wgt. Shipped	Sales Order No.	Heat No.
10406592	8688	20176319-3	D7334
Customer Order No./Req. No.	Delivery Number		
2010125	30435932		
Bill To: 502026	Ship To: 407182		
CENTRAL WIRE	CENTRAL WIRE FOND DU LAC		
TECHALLOY UNION	1795 SOUTH HICKORY STREET		
6509 OLSON ROAD	FOND DU LAC WI 54937		
UNION IL 60180			

## MATERIAL DESCRIPTION:

(TO SIZE) .343 RND COIL LS-A286 VAR HR D.3.PRS.010.8 REV B + SAD 19565, D.3.PRS.008.8 REV F EXCEPT 300#  
MINIMUM COIL WEIGHT & .008" MAX DEFECT DEPTH, 10 CFR CH. I (1-1-08 EDITION) PART 21 - REPORTING OF DEFECTS &  
NONCOMPLIANCE INGOT #1

Capability Heat Treatment: 1800°F (1 hr) WQ + 1325°F (16 hrs) AC

Room Temperature Tensile Test per ASTM E8-11 & ASTM A370-11:

Longitudinal center at .343" Rnd.

ID	UTS(ksi)	0.2TYS(ksi)	EL(%in4d)	R.A.(%)	HRC
M9	160.3	106.2	26	52	36

This test was performed at Westmoreland Mechanical Testing & Research, Inc.,  
Report No. 2-63220.

Combination Stress Rupture per ASTM E292-09:

ID	Temp(°F)	Stress(ksi)	EL(%in4d)	Rupture Life (hrs)^	Rupture Location
MA	1200	70	20.0	70.1	Smooth

^Upload after 48 hrs./ 5 KSI/ every 8-10 hrs.; final stress 85 KSI

This test was performed at Westmoreland Mechanical Testing & Research, Inc.,  
Report No. 2-63220.

Country of origin (Manufacturing & Melting): USA

During the manufacturing process, this material has not come in direct contact with Mercury or any of its compounds. The material has not come in contact with any radioactive sources, Cobalt 60, Radium or Alpha-Source nor devices employing a single boundary of containment. Material is also weld free.

Testing methods for chemical analysis tested at Latrobe Specialty Steel are as follows: C,S,N,O & H = Combustion; Al, W, Cr, V, Mn, Mo, Co, Cu, Al, 1%, Ti, 1%, Pb, Fe & Sn = X-Ray. Balance of elements analyzed on OES. Other testing methods not listed above have been conducted per certified material specification(s).

Latrobe Specialty Steel Company is registered to Quality Management System Standards: ISO 9001 and AS9100.  
Need certs? Our air melt certs are available online at <http://www.latrobesteel.com>

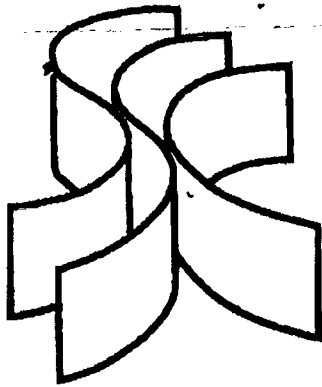
We certify this material to have been manufactured, inspected, and tested; and found the results to conform to all drawing and/or specification requirements and order requirements as applicable. The recording of false, fictitious or fraudulent statements or entries on this document may be punishable as a felony under Federal Statute. This certificate or report shall not be reproduced except in full, without the written approval of Latrobe Specialty Steel Company.

*Paula M Platt*  
Inspection Department

05/21/2012

Date

Paula M Platt - Sr Metallurgical Coordinator



# STAINLESS SALES CORPORATION

3301 South Justine St  
Chicago, Illinois 60608  
Phone 800.621.0872  
Phone 773.247.9060  
Fax 773.247.7238

ISO/TS 16949

## Certificate of Analysis

### MATERIAL ACCEPTED

VOSS PO/LOT TRACE 944929 A

DATE 12/10/13

INSPECTED BY 108

Date:	12/06/13
Customer PO No:	944929-1 ✓
Customer Part No:	10CAAA0400625DR3
SSC Order No:	0221818

To VOSS INDUSTRIES  
2168 WEST 25TH STREET  
CLEVELAND, OH 44113

Description  
Of  
Material

301 ANN .040 X 0.6250 X COIL

### Chemical Properties (%)

C	Mn	P	S	Si	Co	Cb	Nb
.0900 /	1.2300 /	.0270 /	.0010 /	.5400 /			
Cr	Ni	Cu	Mo	Ti	Al	N	
17.2400 /	7.0600 /	.3000 /	.2300 /			.0400	

### Physical Properties

Heat Number	Tensile (psi)	Yield (psi)	% Elongation	% Red Area	Hardness	Grain	R-Val	N-Val
980136 /	120000 /	47400 /	62.000 /	0.000	RB81	0.000	0.000	0.000

Remark: AMS 5901-92 REV. C/VS 902007 REV D  
BEND TEST 180 1XT #3 SLIT EDGE.  
DFARS COMPLIANT

  
Alfredo Rosario  
Quality Assurance Manager

We hereby assert that the above data is a true reproduction of that furnished  
by our source of supply as contained in the records of the corporation.

NOTICE OF SHIPMENT/  
PACKING LIST



45578-00 *Am 11/12/12*  
CERTIFICATE OF TEST

Q/ST. ORDER NO. & DATE: 26977 09/24/12 CUST. ORDER: 844546 ACCEPTING MILL: VANDERGRIFT, PA. SHEETS NO: 558112 PRODUCT CODE: 13020102120000 MILL ORDER NUMBER: 30-092-021 DATE SHIPPED: 11/02/12

FORMS DISTRIBUTION: 1 TO STAINLESS SALES CORP 3301 S. JUSTINE STREET CHICAGO IL 60609

SHIP TO: STAINLESS SALES CORPORATION 2310 W 58TH STREET CHICAGO IL 60636

INVOICE: 659980

GRADE AND SPECIFICATIONS: "ATI 301" STAINLESS STEEL SHEET C R COILS ANNEALED 2B FIN MILL EDGE (AMS 5931C) (ASME-SA-240 ED 2010)

ITEM	PDS	DIMENSIONS W/G/L	HEAT #	COIL #	TEST #	GROSS	TARE	NET	THEO	TAG #/	CD	SKID
201B	1	48.812/.8401/2839.	920136	09272N037	8798524	18970	18970	18970	18970	897193		
C CUST IDENTITY 301B0401X48MESPCMH												
1 COIL												

DIST: EMAIL INVOICE AND S/N TO INVOICING@STAINLESSSALES.COM

TYPE	HEAT/TEST	C	MN	P	S	SI	CR	NI	MO	CU	N
HEAT	920136	.09	1.23	.027	.001	.54	17.24	7.06	.23	.30	.04
TEST LOCATION		MI	MI	MI	MI	MI	MI	MI	MI	MI	MI

ITEM	TEST NO	YIELD PSI	TENSILE PSI	% ELONG IN 2"	% R/A	HARDNESS	BEND	GRAIN SIZE	HARDENABILITY
201B	8798524	T 47400	120000	62.	NR	69.HR30TW	T PASS	NR	NR
TEST LOCATION		TC	TC	TC	TC	TC	TC		

\* Y.S. BY 0.2% OFFSET METHOD

NR = DATA NOT REQUIRED  
GRADE VERIFICATION WAS CARRIED OUT SPECTROSCOPICALLY

PER EN 10204:2003 - 3.1 CERTIFICATE DOES NOT INDICATE PED APPROVAL FOR THIS MATERIAL.

MATERIAL MELTED AND ROLLED IN THE UNITED STATES AND COMPLIES WITH DFA8 JANUARY 2010 EDITION, SECTION 252.225-7000.

PAGE 01 - CONTINUED ON PAGE 02 REPRINT

11/02/12 10:33:55

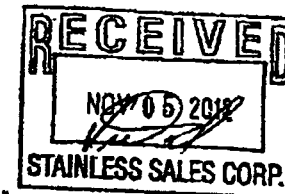
**COGNITION-Please Note-** This commitment was turned over to carrier in first class condition, being correctly loaded, at which time responsibility for loss or damage in shipment ceased. For your protection, please examine shipment as it arrives. If any shortage or damage is discovered, have a full description made by transportation agent on receipt before signing.

**Material Safety Data Sheets** for this product have been supplied to your Purchasing Department. For an additional copy phone 724-225-8900. CAUTION: Processing that makes fumes, dust, or solutions may cause lung disease. See Material Safety Data Sheets for further information.

**WARNING**  
Les fiches d'information-sécurité de ce produit ont été fournies à votre département chargé des achats. Pour obtenir des copies supplémentaires veuillez téléphoner au numéro suivant 724-225-8900. Attention: les traitements entraînant la production de vapeurs, poussières, ou solutions peuvent, dans certains cas, causer des maladies pulmonaires. Pour plus de renseignements se référer aux fiches d'information-sécurité.

The above is a true copy of data on file. The material and test results conform to the values indicated and specifications(s) as set forth in Allegheny Ludlum's Order Acknowledgement.

Stephen Wall  
Director, Customer Quality Assurance



1

**NOTICE OF SHIPMENT/  
PACKING LIST**



**CERTIFICATE OF TEST**

AL 0168-4 1211

CUST. ORDER NO. & DATE 26977		09/04/12 844546		CUST. CODE VANDERGRIFT, PA.		SHIP TO NO. 538112		FACTORY CODE 13020102120004		MFG. ORDER NUMBER 30-892-021		DATE SHIPPED 11/02/12	
FORMS DISTRIBUTION 3 SHIP TO → 1 APD →		REPEAT 92284		GOV. CONTRACT		MATERIAL 1110 VANDERGRIFT		SHIP TO LOCATION SHIP TO		PA		INVOICE 859928	
STAINLESS SALES CORP 3301 S. JUSTINE STREET CHICAGO IL 60608		DSO 521		STAINLESS SALES CORPORATION 2310 W 58TH STREET CHICAGO IL 60636									

**GRADE AND SPECIFICATIONS**  
"ATI 301" STAINLESS STEEL SHEET C R COILS ANNEALED 2B FIN MILL EDGE (AMS 5901C) (ASME-SA-240 ED 2010)  
(ASTM-A-240-12)

CARRIER - GROSS, RONALD, INC.

THIS DIN EN 10204:2005 - 3.1 CERTIFICATE OF TEST SHALL NOT BE REPRODUCED EXCEPT IN FULL. FEDERAL LAW PROHIBITS THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTRIES ON THE CERTIFICATE AND MAY BE PUNISHABLE AS A FELONY UNDER FEDERAL LAW. ATI AL HOLDS SEVERAL QUALITY CERTIFICATIONS THAT INCLUDE ISO-9001, AS9100, NADCAP, AND ISO/IEC 17025. MATERIAL WAS MANUFACTURED IN ACCORDANCE WITH THE ATI AL QUALITY MANUAL REVISION 20 DATED 02/24/2012.

ATI ALLEGHENY LUDLUM PERFORMS CHEMICAL ANALYSIS BY THE FOLLOWING TECHNIQUES:

C, S BY COMBUSTION/INFRARED  
A, C, H BY INERT FUSION/THERMAL CONDUCTIVITY  
C, P, SI, CR, NI, MO, CU, CB, CO, V BY WDXRF  
S BY OES  
AL AND TI (>=0.10%) BY WDXRF, OTHERWISE BY OES  
PB, BI, AG BY CFAA

TESTING WAS PERFORMED AT THE FOLLOWING LOCATIONS:

PA = ATI-ALLEGHENY LUDLUM; 950 TENTH STREET; MIDLAND, PA 15059  
TC = ATI-ALLEGHENY LUDLUM; 1300 PACIFIC AVENUE; NATRONA HEIGHTS, PA 15065

FOR ACCESS TO ONLINE CERTIFICATES OF TEST  
REGISTER AT WWW.ALCEXTRA.COM

PAGE 02 - FINAL PAGE.

REPRINT

11/02/12 10:33:55

**CONSIGNEE-Please Note-**This acknowledgment was turned over to carrier in first class condition, being correctly loaded, at which time our responsibility for loss or damage to shipment ceased. For your protection please examine shipment as it arrives. If any shortage or damage is discovered, have a full description made by transportation agent as well as before signing.

**Material Safety Data Sheets** for this product have been supplied to your Purchasing Department. For an additional copy phone 724-225-6200. CAUTION: Processing that causes heat, GWT, or solution may cause lung disease. See Material Safety Data Sheets for further information.

**WARNING**

Les fiches d'information-sécurité de ce produit ont été fournies à votre département chargé des achats. Pour obtenir des exemplaires supplémentaires veuillez téléphoner au numéro suivant 724-225-6200. Attention: les traitements entraînant la production de vapeur, poudreux, ou solutions peuvent, être cause de maladies pulmonaires. Pour plus de renseignements se référer aux fiches d'information-sécurité.

The above is a true copy of data on file. The material and test results conform to the sales contract and specifications as set forth in Allegheny Ludlum's Order Acknowledgement.

Stephen Wall  
Director, Corporate Quality Assurance

1

**HTG****HITECH AERO GROUP**

HTG - HITECH AERO DIVISION  
34800 Lakeland Blvd. Eastlake, Ohio 44095  
440-946-2280 - Fax: 440-946-2283

**PROCESS CERTIFICATION**

CUSTOMER NAME : VOSS INDUSTRIES  
HTG JOB NO : 14/039  
SALES ORDER : S83345  
CUST ORDER# : 945472, 945478  
PART NUMBER : FT3JF-225A, VRD1046  
DESCRIPTION : T-BOLTS  
QUANTITY : 12698, 22798

CUST ID : VOSIN  
HTG SHIP DATE : 1/13/14

PROCESS SPECIFICATION(S) VS901012 Revision C

PROCESS	TEMPERATURE	TIME	COOL
AGE HARDEN (VACUUM)	1325°F (±25°F)	16 HOURS (+80/-0 MINUTES)	ARGON COOL <250°F

ATMOSPHERE : 100 MICRONS MAX.  
BASE METAL : A-286  
REQUIRED HARDNESS : 35-41 HRC  
HARDNESS SCALE : HRC  
ACTUAL HARDNESS : 38 HRC  
NUMBER PIECES CHECKED : 2

**MATERIAL ACCEPTED**VOSS PO/LOT TRACE 945472DATE 1-14-14

INSPECTED

BY 

This is to certify that this order was processed in accordance with the specifications referenced above, the purchase order requirements and the applicable drawings.

SIGNED:   
PAUL VONLEHMEN, PLANT MANAGER -OR-  
ENRIQUE CRUZ, QUALITY MANAGER

# FPI INSPECTION REPORT

Voss = 2168 West 25th Street  
Cleveland, Ohio 44113

Date: <u>6/20/14</u>	Customer: <u>VOSS</u>	Voss Order Number: <u>734504</u>
Procedure Number: <u>PI-23-01</u>	Customer Order Number: _____	Voss Part Number: <u>TA3L-62-56</u>
Card Number: <u>INTERNAL</u>	Customer Part Number: _____	Order Quantity: <u>15000</u>


Part Name: <u>TRUNNION</u>	Material Type: <u>301</u>	Drawing No: <u>TA3</u>	Rev: <u>A 000</u>
Lot Size: <u>2265</u>	In-process <input type="checkbox"/>	Final <input checked="" type="checkbox"/>	
Specification and Revision: <u>ASTM-E1417/E1417M-11</u>			
Accept/Reject Criteria (Latest Specification Revision and or Drawing Note & Revision) : <u>VS904010 REV B .015 MAX ROUNDED / NO LINEAR OR THROUGH INDICATIONS</u>			

Penetrant Brand: <u>ZL-80D ZYGLO MAG</u>	Developer Brand: <u>ZP-4B ZYGLO MAG</u>	Developer Category: <u>a</u>
Type: <input checked="" type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III	Method: <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	Level: <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Penetrant Dwell Time: <u>10 MIN.</u>	Developer Dwell Time: <u>10 MIN/2 HRS MAX</u>	Drying Time: <u>10 MIN.</u>

Blacklight ( $\mu\text{w}/\text{cm}^2$ ): <u>310</u>	White Light ( $\mu\text{w}/\text{cm}^2$ at 15"): <u>2850</u>	0.1
White Light - Ambient (foot-candles): <u>0.0</u>	White Light - Ambient (foot-candles): <u>0.1</u>	
	White Light - Visible Inspection (foot-candles): <u>&gt;189.9</u>	

Rinse Water Pressure: <u>39 PSI</u>	Accepted: <u>2191</u>	Return To Production: <u>2191</u>
Rinse Water Temperature: <u>70° F</u>	Rejected: <u>74</u>	Scrap: <u>74</u>
Drying Temperature: <u>134° F</u>	NCT#: <u>9987</u>	Rework: _____

--

Name <u>MJ</u> <u>DAM</u> Level <u>2</u>	
Source Inspector: _____	

# FPI INSPECTION REPORT

Voss • 2168 West 25th Street  
Cleveland, Ohio 44113

FPI Report Information	Customer Order Information	Voss Order Information
Date: <u>3/11/14</u>	Customer: <u>VOSS</u>	Voss Order Number: <u>733922</u>
Procedure Number: <u>PI-23-01</u>	Customer Order Number: <u>---</u>	Voss Part Number: <u>VS2850-500</u>
Card Number: <u>0636</u>	Customer Part Number: <u>---</u>	Order Quantity: <u>975</u>


Part Information		
Part Name: <u>EYEBOLT CLIP</u>	Material Type: <u>NICKEL ALLOY 718</u>	Drawing No: <u>VS2850</u> Rev: <u>-</u>
Lot Size: <u>468</u>	In-process <input type="checkbox"/>	Final <input checked="" type="checkbox"/>
Specification and Revision: <u>ASTM-E1417/E1417M-11</u>		
Accept/Reject Criteria (Latest Specification Revision and or Drawing Note & Revision) : <u>MIL-STD-1907 NOTICE 4 TABLE I GRADE B PER PRINT (NOTE 2)</u>		

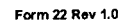
Penetrant Process		
Penetrant Brand: <u>ZI-80D ZYGLO MAG</u>	Developer Brand: <u>ZP-4B ZYGLO MAG</u>	Developer Category: <u>A</u>
Type: <input checked="" type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III	Method: <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	Level: <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Penetrant Dwell Time: <u>10 MIN.</u>	Developer Dwell Time: <u>10 MIN.</u>	Drying Time: <u>10 MIN.</u>

Visual Inspection		Light Source Intensity	
Blacklight ( $\square$ w/cm <sup>2</sup> ): <u>320</u>		Blacklight $\square$ w/cm <sup>2</sup> at 15": <u>1840</u>	White Light foot-candles at 15": <u>0.0</u>
White Light - Ambient (foot-candles): <u>0.0</u>		White Light - Ambient (foot-candles): <u>0.0</u>	White Light - Visible Inspection (foot-candles): <u>&gt;199.9</u>

System Parameters	Accept/Reject	Disposition
Rinse Water Pressure: <u>38 PSI</u>	Accepted: <u>468</u>	Return To Production: <u>468</u>
Rinse Water Temperature: <u>88° F</u>	Rejected: <u>0</u>	Scrap: <u>0</u>
Drying Temperature: <u>140° F</u>	NCT#: <u>---</u>	Rework: <u>---</u>

Comments

Inspector	Stamp
Name: <u>[Signature]</u> Level: <u>2</u>	
Source Inspector: <u>---</u>	







Tel: +1.305.925.2600 • Fax: +1.305.507.7191 • www.KLXaerospace.com  
Remit to Address: 88289 Expedite Way, Chicago, IL 60695-0001  
Wire Instructions: KLX Inc. • JPMorgan Chase Bank New York  
ABA: 021000021 • Account: 304639273 • SWIFT: CHASUS33 • CHIP UID: 0002

CONSOLIDATION

1H1VWJ

PAGE 1



SEND TO ACCOUNTING  
SOLD TO:  
002409

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

SHIP TO:

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

ORDER NO. See Below		DATE 01/31/2018	SHIP VIA FEDX INTL P1 COLL		TERMS NET 30		SHIPPING TERMS FOB-MIAMI	
ITEM NO.	QUANTITY ORDERED	PART NUMBER AND DESCRIPTION		PRICE	UNIT	BACK ORDER	SHIPPED	AMOUNT
1  <								

ALL ITEMS ARE SUBJECT TO A 100% RESTOCKING CHARGE.

### PACKING SLIP

BY RECEIVING DELIVERY OF THE ITEMS COVERED BY THIS PACKING SLIP, BUYER AGREES TO THE TERMS AND CONDITIONS OF SALE AT:  
<http://www.KLXaerospace.com/conditions-sale/>



Tel: +1.305.925.2600 • Fax: +1.305.507.7191 • www.KLXAerospace.com  
Remit to Address: 88289 Expedite Way, Chicago, IL 60695-0001  
Wire Instructions: KLX Inc. • JPMorgan Chase Bank New York  
ABA: 021000021 • Account: 304639273 • SWIFT: CHASUS33 • CHIP UID: 0002

INVOICE NUMBER

JHFZXS

PAGE 1 OF 3

SOLD TO:

002409  
DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

SHIP TO:

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7



ORDER NO.		DATE	SHIP VIA	TERMS		SHIPPING TERMS	
PO038920		01/31/18	FEDX INTL P1 COLL	NET 30		FOB-MIAMI	
ITEM NO.	QUANTITY ORDERED	PART NUMBER AND DESCRIPTION	PRICE	UNIT	BACK ORDER	SHIPPED	AMOUNT
1	20	MS21919WDG19 CLAMP 1-3/16 LOOP CLAMP WEDGE, ALUM (COLOR CODE: BLACK W/B ECCN :9A991.d Country Origin: USA TARIFF: 7616.99.5190 SCHEDULE B: 7616.99.5195 MFR: UMPCO CTRL# : 2017K06568 LOT# : UMP121292 LOT QTY: 20	1.550	EA	0	20	31.00
2	2	MS24523-27 SWITCH MS24523-27 ECCN :9A991.d Country Origin: USA TARIFF: 8536.50.9065 SCHEDULE B: 8536.50.9065 MFR: HONEYWELL SENSING CTRL# : 2017H29463 LOT# : 1702 LOT QTY: 2 **REF: MS24523-27 **CUST PN: MS24523-27	15.030	EA	0	2	30.06
3	6	MS3373-A1 STRIP MS3373-A1 STRIP MOUNTING NUT (FOR TERMINAL BOARD) DIALLYL GR ECCN :EAR99 Country Origin: USA TARIFF: 3926.90.9995 SCHEDULE B: 3926.90.9987	3.080	EA	0	6	18.48
***CONTINUED***							
MATERIAL TO BE RETURNED MUST HAVE PRIOR AUTHORIZATION BY KLX INC.							

ALL ITEMS ARE SUBJECT TO A 100% RESTOCKING CHARGE.

SHIPPED FROM: 10000 N W 15TH TERRACE, MIAMI, FL 33172

## ORIGINAL INVOICE

BY RECEIVING DELIVERY OF THE ITEMS COVERED BY THIS INVOICE, BUYER AGREES TO THE TERMS AND CONDITIONS OF SALE AT:  
<http://www.KLXAerospace.com/conditions-sale/>



Tel: +1.305.925.2600 • Fax: +1.305.507.7191 • www.KLXAerospace.com  
Remit to Address: 88289 Expedite Way, Chicago, IL 60695-0001  
Wire Instructions: KLX Inc. • JPMorgan Chase Bank New York  
ABA: 021000021 • Account: 304639273 • SWIFT: CHASUS33 • CHIP UID: 0002



INVOICE NUMBER

JHFZXS

PAGE 2 OF 3

SOLD TO:

002409  
DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

SHIP TO:

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7



ORDER NO. PO038920		DATE 01/31/18	SHIP VIA FEDX INTL P1 COLL		TERMS NET 30		SHIPPING TERMS FOB-MIAMI		
ITEM NO.	QUANTITY ORDERED	PART NUMBER AND DESCRIPTION			PRICE	UNIT	BACK ORDER	SHIPPED	AMOUNT
4	40	MFR: R&B ELECTRONICS CTRL# : 2017C05059 LOT# : 0075143-001B LOT QTY: 6 **REF: MS3373-A1 **CUST PN: MS3373-A1 AN310C5 NUT AN310C5 ECCN :EAR99 Country Origin: USA TARIFF: 7318.16.0085 SCHEDULE B: 7318.16.0000 MFR: GREER STOP NUT/SPS CTRL# : 2017F06588 LOT# : J000047024-0000 LOT QTY: 40 **REF: AN310C5 **CUST PN: AN310C5  ** Tail Number: E135  <i>These items are controlled by the U.S. Government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by</i>			1.190	EA	0	40	47.60
***CONTINUED***									
MATERIAL TO BE RETURNED MUST HAVE PRIOR AUTHORIZATION BY KLX INC.									

ALL ITEMS ARE SUBJECT TO A 100% RESTOCKING CHARGE.

SHIPPED FROM: 10000 N W 15TH TERRACE, MIAMI, FL 33172

### ORIGINAL INVOICE

BY RECEIVING DELIVERY OF THE ITEMS COVERED BY THIS INVOICE, BUYER AGREES TO THE TERMS AND CONDITIONS OF SALE AT:  
<http://www.KLXAerospace.com/conditions-sale/>



INVOICE NUMBER
JHFZXS

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

2. Once the problem is identified, the next step is to define the objectives and goals of the project. This helps to clarify what needs to be achieved and provides a clear direction for the work.

3. The third step is to develop a plan or strategy to address the problem. This involves breaking down the problem into smaller, manageable tasks and determining the resources needed to complete them.

4. The fourth step is to implement the plan. This involves putting the strategy into action and monitoring progress to ensure that the objectives are being met.

5. The final step is to evaluate the results of the project. This involves assessing the outcomes against the objectives and identifying any areas for improvement or further action.

## Form 22 Rev 1.0



Tel: +1.305.925.2600 • Fax: +1.305.507.7191 • www.KLXaerospace.com  
Remit to Address: 88289 Expedite Way, Chicago, IL 60695-0001  
Wire Instructions: KLX Inc. • JPMorgan Chase Bank New York  
ABA: 021000021 • Account: 304639273 • SWIFT: CHASUS33 • CHIP UID: 0002



INVOICE NUMBER

JHFZXS

PAGE 1 OF 3

SOLD TO:

002409  
DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

SHIP TO:

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7



ORDER NO.		DATE	SHIP VIA	TERMS		SHIPPING TERMS	
PO038920		01/31/18	FEDX INTL P1 COLL	NET 30		FOB-MIAMI	
ITEM NO.	QUANTITY ORDERED	PART NUMBER AND DESCRIPTION	PRICE	UNIT	BACK ORDER	SHIPPED	AMOUNT
1	20	MS21919WDG19 CLAMP 1-3/16 LOOP CLAMP WEDGE, ALUM (COLOR CODE: BLACK W/BUE IDEN ECCN :9A991.d Country Origin: USA TARIFF: 7616.99.5190 SCHEDULE B: 7616.99.5195 MFR: UMPCO CTRL# : 2017K06568 LOT# : UMP121292 LOT QTY: 20	1.550	EA	0	20	31.00
2	2	MS24523-27 SWITCH MS24523-27 ECCN :9A991.d Country Origin: USA TARIFF: 8536.50.9065 SCHEDULE B: 8536.50.9065 MFR: HONEYWELL SENSING CTRL# : 2017H29463 LOT# : 1702 LOT QTY: 2 **REF: MS24523-27 **CUST PN: MS24523-27	15.030	EA	0	2	30.06
3	6	MS3373-A1 STRIP MS3373-A1 STRIP MOUNTING NUT (FOR TERMINAL BOARD) DIALLYL GR ECCN :EAR99 Country Origin: USA TARIFF: 3926.90.9995 SCHEDULE B: 3926.90.9987	3.080	EA	0	6	18.48
							***CONTINUED***
MATERIAL TO BE RETURNED MUST HAVE PRIOR AUTHORIZATION BY KLX INC.							

ALL ITEMS ARE SUBJECT TO A 100% RESTOCKING CHARGE.

SHIPPED FROM: 10000 N W 15TH TERRACE, MIAMI, FL 33172

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<http://www.KLXaerospace.com/conditions-sale/>



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Remit to Address: 88289 Expedite Way, Chicago, IL 60695-0001  
Wire Instructions: KLX Inc. • JPMorgan Chase Bank New York  
ABA: 021000021 • Account: 304639273 • SWIFT: CHASUS33 • CHIP UID: 0002

INVOICE NUMBER

JHFZXS

PAGE 2 OF 3

SOLD TO:  
002409

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

SHIP TO:

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

ORDER NO. PO038920		DATE 01/31/18	SHIP VIA FEDX INTL P1 COLL		TERMS NET 30		SHIPPING TERMS FOB-MIAMI	
ITEM NO.	QUANTITY ORDERED	PART NUMBER AND DESCRIPTION		PRICE	UNIT	BACK ORDER	SHIPPED	AMOUNT
4	40	MFR: R&B ELECTRONICS CTRL# : 2017C05059 LOT# : 0075143-001B LOT QTY: 6 **REF: MS3373-A1 **CUST PN: MS3373-A1 AN310C5 NUT AN310C5 ECCN :EAR99 Country Origin: USA TARIFF: 7318.16.0085 SCHEDULE B: 7318.16.0000 MFR: GREER STOP NUT/SPS CTRL# : 2017F06588 LOT# : J000047024-0000 LOT QTY: 40 **REF: AN310C5 **CUST PN: AN310C5  ** Tail Number: E135  <i>These items are controlled by the U.S. Government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by</i>		1.190	EA	0	40	47.60
***CONTINUED***								
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INVOICE NUMBER

JHFZXS

PAGE 1 OF 3

SOLD TO:

002409  
DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

SHIP TO:

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7



ORDER NO.		DATE	SHIP VIA	TERMS		SHIPPING TERMS		
PO038920		01/31/18	FEDX INTL P1 COLL	NET 30		FOB-MIAMI		
ITEM NO.	QUANTITY ORDERED	PART NUMBER AND DESCRIPTION		PRICE	UNIT	BACK ORDER	SHIPPED	AMOUNT
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2	2	MS24523-27 SWITCH MS24523-27 ECCN :9A991.d Country Origin: USA TARIFF: 8536.50.9065 SCHEDULE B: 8536.50.9065 MFR: HONEYWELL SENSING CTRL# : 2017H29463 LOT# : 1702 LOT QTY: 2 **REF: MS24523-27 **CUST PN: MS24523-27		15.030	EA	0	2	30.06
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***CONTINUED***								
MATERIAL TO BE RETURNED MUST HAVE PRIOR AUTHORIZATION BY KLX INC.								

ALL ITEMS ARE SUBJECT TO A 100% RESTOCKING CHARGE.

SHIPPED FROM: 10000 N W 15TH TERRACE, MIAMI, FL 33172

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BY RECEIVING DELIVERY OF THE ITEMS COVERED BY THIS INVOICE, BUYER AGREES TO THE TERMS AND CONDITIONS OF SALE AT:  
<http://www.KLXaerospace.com/conditions-sale/>



PAGE 3 OF 3

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY, ON  
CANADA K6A 1K7

**ALL ITEMS ARE SUBJECT TO A 100% RESTOCKING CHARGE.**

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## Form 22 Rev 1.0



ATTN: FREIGHT FORWARDER

ATTN: FREIGHT FORWARDER

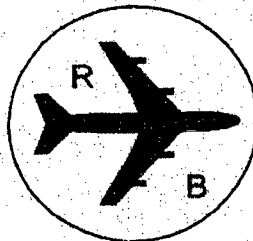
10000164 QM08  
10000164 ASH09



ISO 9001 : 2008  
AS 9100C : 2009-01

**R&B Electronics**  
Corporate Office  
1520 Industrial Park Drive  
Sault Ste. Marie, MI. 49783  
Phone: (906) 632-1542  
Fax: (906) 632-8105

# R&B ELECTRONICS, INC.®



10000176 QM08  
10000176 ASH09



ISO 9001 : 2008  
AS 9100C : 2009-01

**R&B Electronics**  
2374 N.W. Dallas Street  
Grand Prairie, TX 75050  
Phone: (972) 606-9933  
Fax: (972) 606-0074

## PACKING LIST

096699

### Special Instructions

☐ Cert Enclosed ☐ Partial Ship ☒ Complete Ship

Goods Received in Good Condition

By: \_\_\_\_\_

Date: \_\_\_\_\_

**SOLD TO:**

KLX INC  
10000 NW 15TH TERRACE  
MIAMI FL 33172  
Phone: 800-533-5155 Fax: 305-507-7192

**SHIP TO:**

KLX AEROSPACE SOLUTIONS  
KLX INC.  
9835 NW 14TH ST  
MIAMI FL 33172  
Phone: 305-592-5155 Fax: 305-507-7192

Sales Order	Ship Num	Cust No	Order Date	Tax	Promised	Sales Rep	Customer P.O. Number	Mark Shipment	
0075143	0000	MAN001	1/27/2017	E	2/10/2017	CYNTHIA GARDNER	003S022/880CG	TBD	
F.O.B. Point			Ship Date	Shipped Via		Cartons	Weight	Tracking Number	Ins
OUR DOCK			2/22/2017	UPS DEST					N

Item	T	QUANTITY			Unit	Part Number/Revision	Description
		Order	B/O	Ship			
001	S	3,901		3,901	EA	MS3373-A1 C	SPECIAL PRICING 7/18/16 PROMISED: 2/10/17

PARTS MANUFACTURED BY R & B ELECTRONICS, INC. - COUNTRY OF ORIGIN IS USA

# Shipment Packing Slip Report

5/19/2017 4:27:45 PM

**GREER STOP NUT**

**SPS** 481 McNALLY DRIVE \* NASHVILLE TN 37211  
TECHNOLOGIES

From Warehouse: MAIN

Page: 1

Shipment: 58114

From:

GREER STOP NUT  
481 McNALLY DRIVE  
NASHVILLE TN 37211  
UNITED STATES  
615-832-8375

THESE ITEMS ARE CONTROLLED BY THE U.S. GOVERNMENT AND AUTHORIZED FOR EXPORT ONLY TO THE COUNTRY OF ULTIMATE DESTINATION FOR USE BY THE ULTIMATE CONSIGNEE OR END-USER(S) HEREIN IDENTIFIED. THEY MAY NOT BE RESOLD, TRANSFERRED, OR OTHERWISE DISPOSED OF, TO ANY OTHER COUNTRY OR TO ANY PERSON OTHER THAN THE AUTHORIZED ULTIMATE CONSIGNEE OR END-USER(S), EITHER IN THEIR ORIGINAL FORM OR AFTER BEING INCORPORATED INTO OTHER ITEMS, WITHOUT FIRST OBTAINING APPROVAL FROM THE U.S. GOVERNMENT OR AS OTHERWISE AUTHORIZED BY U.S. LAW AND REGULATIONS



Bill To: 427568

Ship To: (1)

KLX INC.  
10000 NW 15TH TERRACE  
MIAMI FL 33172-2756  
UNITED STATES

KLX INC.  
9835 NW 14TH ST.  
MIAMI FL 33172  
UNITED STATES

Order Contact:

Pickup Date	Order	Cust PO	Ship Via	Carrier	Weight	Packages
5/19/2017	CJ00017802	005BP54	TTRK		236.25	9

Due Date	Req Date	Terms	Ship Early	Partial Qty	Tracking / PRO
06/06/2017	02/07/2017	N35	Not Before	No Partial	

Order	Line/Release	Item	U/M	Quantity	Package ID
CJ00017802	1-0	503320	EA	507.00	10,217
		Description: AN310C5			
		CI: AN310C5	Rev: 1		
		Lot: J000013474-0000			
CJ00017802	1-0	503320	EA	534.00	10,217
		Description: AN310C5			
		CI: AN310C5	Rev: 1		
		Lot: J000042996-0000			
CJ00017802	1-0	503320	EA	25,209.00	10,217
		Description: AN310C5			
		CI: AN310C5	Rev: 1		
		Lot: J000047024-0000			

JK

SPS TECHNOLOGIES LLC

Page 1 of 2

lchancellor

CR-040 Rev. NC

Any alteration or misuse of this certificate, or any unauthorized rework or modification of the identified products voids all manufacturer's warranties, and may lead to civil damages and/or criminal penalties.

CLAIMS FOR GOODS MUST BE MADE ON RECEIPT OF GOODS. ALL GOODS SHIPPED AT BUYERS RISK. NO MATERIAL ACCEPTED FOR RETURN WITHOUT OUR PERMISSION.

# Shipment Packing Slip Report

5/19/2017 4:27:45 PM

**GREER STOP NUT**

**SPS** 481 McNALLY DRIVE \* NASHVILLE TN 37211  
TECHNOLOGIES  
LLC

From Warehouse: MAIN

Page: 2

Shipment: 58114

From:

GREER STOP NUT  
481 McNALLY DRIVE  
NASHVILLE TN 37211  
UNITED STATES  
615-832-8375



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under 150 Lbs ship Fed Ex Ground acct 0331-0149-0 - Mark COLLECT  
if over 150 lbs ship Fed Ex Freight Economy acct 300 176

JK

SPS TECHNOLOGIES LLC

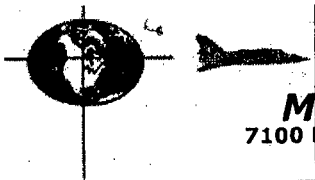
Page 2 of 2

Ichancellor

CR-040 Rev. NC

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# UMPCO, INC.

**MANUFACTURE OF CLAMPS, CLIPS & BRACKETS**  
7100 LAMPSON AVENUE P.O. BOX 5158 GARDEN GROVE, CA 92846-5158 714-897-3531  
WWW.UMPCO.COM

Customer NO.

KLX001—

Sales Order NO.

439845

ASN

**SOLD TO**

KLX INC  
10000 NW 15TH TERRACE  
MIAMI, FL 33172

SHIPPING DEST CODE MIAM

**SHIP TO**

KLX INC  
9835 NW 14th ST  
MIAMI, FL 33172

CLAIMS FOR ERRORS AND ALL DEDUCTIONS MUST BE MADE WITHIN 5 DAYS OF RECEIPT OF INVOICE 1 1/2% SVC. PER MO. CHARGED ON ALL PAST DUE AMOUNTS

ORDER DATE

08/16/17

SHIP VIA

FEDEX GROUND

F.O.B.

RECIPIENT

TERMS

1/2 % 10 NET 30

SHIPPING DATE

NOV 01 2017

PURCHASE ORDER NUMBER

0072S66

ORDER DATE

08/16/17

CONTACT

SALES ORDER NO.

BILL OF LADING NUMBER

ITEM ON ORDER QUAN.SHIPPED QUAN. BO

DESCRIPTION

ITEM	ON ORDER	QUAN.SHIPPED	QUAN. BO	DESCRIPTION	11	N	1 - 100 4#	7 - 700 182#
1	5000	5000		MS21919WDG19				
				REV E				

Lot#	UMP121292	3Q17	Qty: 1400	IR Nun	190727	191775	191804	191656
Lot#	UMP121661	3Q17	Qty: 3500	IR Nun	190727	191790	191804	191656
Lot#	UMP121661	3Q17	Qty: 100	IR Nun	190727	191790	191804	191656

2	1			FULL_TEST_RPTS	11/	S/C	N	
3	5000	0		MS21919WDG19	05/16/18		N	
				REV E				
4	1	0		FULL_TEST_RPTS	05/16/18	S/C	N	

RR

85% SHELF LIFE REQUIRED *BC*

NOTE: UNDER 150 # SHIP FED X GROUND,  
IF OVER 150 # SHIP FED EX FREIGHT ECONOMY

Page 1

Printed: 10/25/17 09:37:45

TOTAL CARTONS 8  
FEDEX GROUND 033101490

TOTAL WEIGHT 186

PURCHASE ORDER NUMBER

CUSTOMER NO.

SALES ORDER NO.



A WRITTEN RETURN MATERIAL AUTHORIZATION FORM (RMA) MUST BE OBTAINED FROM UMPCO BEFORE RETURNING ANY MATERIALS FOR CREDIT OR REPLACEMENT. WE HEREBY CERTIFY THAT THESE GOODS WERE PRODUCED IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF SECTION 6, 7 & 12 OF THE FAIR LABOR STANDARDS ACT, AS AMENDED, AND OF REGULATIONS AND ORDERS OF THE UNITED STATES DEPARTMENT OF LABOR ISSUED UNDER SECTION 14 THEREOF. UMPCO certifies that parts shipped on above documents conforms in all respects to applicable specifications and/or standards. Complete physical and chemical test reports as required are on file and available for review. Processing product testing and inspection control of raw material shall be in conformance with all applicable specifications, drawings and/or standards. Products are produced in a mercury free environment. "When applicable, materials are compliant to DFARS 252.225-7009."

UMPCO, INC. 7100 Lampson Ave.  
Garden Grove, CA 92841

Authorized Signature Final Inspector

DELIVERY RECEIPT NO. 439845